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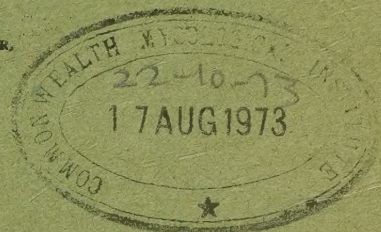
MAURITIUS

Annual Report
OF THE
Ministry of Agriculture
AND
Natural Resources
for the year 1969

No. 17 of 1972

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L. CARL ACHILLE, GOVERNMENT PRINTER,
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MINISTRY OF AGRICULTURE AND NATURAL RESOURCES

(Agricultural Services),

Réduit,

2nd March, 1972.

SIR,

I have the honour to submit the Annual Report of the Agricultural Services for the year 1969.

I have the honour to be,

Sir

Your obedient servant,

B. D. Roy,

Chief Agricultural Officer.

THE HONOURABLE THE MINISTER OF

AGRICULTURE AND NATURAL RESOURCES,

MINISTRY OF AGRICULTURE AND NATURAL RESOURCES,

PORT LOUIS.

Annual Report of the Ministry of Agriculture and Natural Resources (Agricultural Services) for the year 1969

I. General Review

During 1969, the policy remained the same as in previous years, namely the maximum utilization of land and water resources of Mauritius and its Dependencies.

2. The work of the Land and Water Resources Survey team of the FAO/UNDP was completed towards the middle of the year except for certain specific studies namely (i) the drawing up of a land use map; (ii) the study of the agrarian structure, which are continuing.

3. An FAO Milk and Meat Project which was started in October, 1968, to investigate the production and marketing of all livestock and livestock products has been making satisfactory progress. The Poultry Industry is now well developed and the country is now almost self sufficient in eggs and poultry meat.

4. A UNDP/FAO/SF Fishery Development Project became operational in April, 1969. Some preliminary work had started the previous year and a Survey of fish marketing had been completed during the year.

5. Following a visit to Mauritius of an economic mission from the Republic of China (Taiwan), an Agreement of Technical Co-operation was signed on the 25th July, 1969, between the Government of Mauritius and the Government of the Republic of China. The latter agreed to make the services of experts available to carry out, within a period of five years, a project of technical co-operation to be implemented in two stages, with a view to promoting the increase and diversification of agricultural production in Mauritius. The Government of the Republic of China would contribute U. S. \$ 1,500,000 during the five-year period of the project.

6. The Tea planting programme continues in the uplands of land hitherto under forestry or uncultivated. It is envisaged to plant 1,000 Arpents in each of the 4 years of the 1966-1970 Development Programme. Emphasis continues to be increasing the productivity of land under cultivation and intensifying utilization of all cultivable land.

7. A conference of Tea Exporting Countries under the aegis of the Food and Agriculture Organisation, was held in Mauritius from the 23rd July to the 1st August, 1969 under the Chairmanship of Hon. S. Boolell, Minister of Agriculture and Natural Resources. That meeting was convened in accordance with the recommendation of the Producers at the Working Party on Stabilization of Tea prices which was held in Rome from the 5th to the 16th

May, 1969. Thirty-nine delegates from 13 countries attended the meeting together with an observer from Australia. The main recommendations of the meeting were:

- (i) of the estimated quantity of black tea available for export in 1970, some 90 million pounds should be removed from the market, which would give a reasonable expectation of a substantial improvement in the price level which would otherwise obtain. The amount allocated for Mauritius for the year 1970 is 9.5 million pounds.
- (ii) every effort should be made by producing countries to continue the generic campaign in the U.K. and also to urge the trade side of the U.K. Tea Council to increase their contribution to the promotion campaign. In addition all producing countries should devise ways and means to increase internal consumption.

8. Potato production was only 5,760 metric tons compared to 9,550 in the previous year. The storage capacity of the Agricultural Marketing Board was about 1,000 metric tons under refrigeration and an additional 2,000 tons of ventilated stores; the latter has not proved very satisfactory in the summer months for the highly perishable commodities the Board is dealing with. It is expected that in the near future refrigerated cold storage capacity will be increased to about 3,800 metric tons. Because of the limited amount of seeds planted it was not found necessary to restrict the quantity of potatoes nor was there any obligation for producers to sell their produce to the Board. Onion production was about 1,700 metric tons excluding Rodrigues compared to 1,500 metric tons the previous year. Imports of onion were about 660 metric tons compared to 950 metric tons the previous year. No garlic was offered for sale by Mauritian producers to the Board. The Rodrigues onion crops offered for sale to the Board amounted to 450 metric tons. Just over 21 tons of Rodrigues garlic were purchased. The Rodriguan limes had not yet recovered from the cyclones of the two preceding years and consequently no limes were offered for sale. During the year red beans, broad beans, dried chillies and coriander were declared controlled products.

9. Control over illegal fishing was improved with the re-organisation of the fisheries protection service and the establishment of two additional control posts on the coast. Catch figures in 1969 were much higher compared to the 1968 catch, the increase being attributed to good weather during the year which encouraged the exploitation of the shell fishery outside the lagoons.

10. Rainfall, though below normal, was well distributed and a good crop of cane was produced. Good growth conditions prevailed in the early part of the year and the drier conditions later in the year were favourable to maturity. The tea crop was also better than at the same time the previous year early in the season, but the drier conditions in the second half of the year led to lower yields as compared to the same period the previous year. The Virginia tobacco crop produced in the second season suffered from drought conditions that prevailed during the latter part of the year. Climatic conditions in Rodrigues were very unfavourable throughout the year for agricultural production. Rains were late early in the year which delayed plantations, and failed again at the end of the year with consequent reductions in the production of the two most important crops, maize and onion.

11. Favourable growth conditions early in the year resulted in low sugar yield at the start of the crop. However conditions became favourable to maturation during the second half of the crop period so that the sugar yield averaged the same as for the past few years. Production of sugar was 668,672 metric tons compared with 596,549 metric tons in 1968. The yield of sugar per arpent was 3.45 tons compared with 3.14 metric tons in 1968.

12. Production of tea registered an increase of 39.5 per cent compared to the previous year, being 3,191,253 kgs in 1969 compared to 2,287,791 kgs in 1968. Of this production about 16.0 per cent was consumed locally the remainder being exported mainly to South Africa and United Kingdom. Exports to South Africa and United Kingdom in 1969 were 2,902,157 pounds and 2,587,523 pounds respectively compared with 2,034,424 pounds and 1,690,318 pounds respectively in 1968. The average price of Mauritian tea on the London Market was 3/6.89d* compared with 3/5.76d in 1968, i.e. a slight increase of 1.13d/lb. over the previous year.

13. Whereas in 1968, 953 arpents were planted under tobacco producing 727 tons, in 1969 only 607 arpents were planted to produce 449 tons of both air-cured and flue cured tobacco, the reduction in acreage being 32 per cent in the case of flue cured Virginia and 38 per cent in the case of air cured Amarello. The average yield of flue cured Virginia at 561 kgs per arpent was slightly higher than last year but the average price obtained was slightly lower. On the other hand, the yield of Amarello air cured at 976 kgs per arpent was slightly lower than last year but the price obtained was slightly better giving an over-all higher return per arpent.

14. The production of aloe fibre at 1,309 metric tons almost equalled last year's production of 1,318 metric tons. As in past years the aloe fibre produced was mixed with imported jute mainly for the manufacture of sacks at the Government Sack Factory. 2,442,181 sacks were produced compared to 1,548,141 sacks in 1968.

15. The total weight of locally produced beef from slaughter houses amounted to 813,322 lbs from animals reared in Mauritius and 182,976 lbs from Rodriguan animals imported into Mauritius compared with 1,187,436 lbs and 225,030 lbs respectively in 1968. 11,383 bullocks, imported from Madagascar, were slaughtered compared with 10,625 bullocks in 1968. The importation of frozen beef and beef product was about 759,000 lbs compared with about 833,500 lbs in 1968. The quantity of sheep and goats from Rodrigues to Mauritius was 895 and 2,916 heads respectively compared with 1,139 and 1,956 heads respectively the previous year.

16. Production of foodcrops and vegetables was slightly lower than the previous year. There was a substantial increase in the production of maize, groundnuts and ginger but a marked reduction on the production of potatoes. The estimated total production of food-crops was 46,637 metric tons compared to 50,521 metric tons in 1968.

*This is arrived at by using Custom's report on sales of tea.

17. The Board of Agriculture, Fisheries and Natural Resources met only once and as in the past years made recommendations to the Minister regarding nominations to the various sub-committees, e.g. Fisheries Committee, Land Settlement Committee, Cane Release Committee and Irrigation Committee.

18. The Agricultural Services of the Ministry of Agriculture and Natural Resources were re-organized as from the 1st of July, 1968, and comprised 12 Divisions with 339 officers on the establishment list, including the Chief Agricultural Officer and two Principal Agricultural Officers who plan and carry out the experimental, development and extension work of the organisation. Of these, there were 80 vacancies at the close of the year compared with 87 vacancies in 1968. Assistance was received from the Food and Agriculture Organisation of the United Nations in setting afoot a United Nations Development Project on Milk and Beef and another United Nations Project on Fisheries.

19. The work of the Agricultural Services is broadly divided into:

- (a) applied research and development—to study and develop crops and livestock in the various environmental conditions obtaining in Mauritius and Rodrigues;
- (b) extension—to advise and assist farmers with a view to their obtaining the maximum productivity and economic returns from their farms.

20. The development of agricultural industries, other than sugar, and the provision of extension services to both small sugar-cane planters and others as well as livestock producers continued to be the main concern of the department.

21. The "Produce More Food" Campaign covered practically all the villages of the island. Efforts were mainly directed towards the growing of fruits trees and of pulses. Production of foodcrops in cane interlines is increasing with sugar estates and large planters taking a larger part. Beans, maize, potato and tomatoes were again the main crops grown in virgin interlines. Ratoon interlines are also being planted with short cycle crops in many localities.

22. The Agricultural Services continued to maintain the essential service which they provide to the Sugar Industry, namely the Sugar Millers and Planters Arbitration and Control Board which regulates the sale and purchase of sugarcane as well as the Extension Services for small sugarcane planters below 100 arpents. Some 22,032 tests were carried out on planters and miller/planters sugarcane at 21 factories. Fifteen protests were received in respect of the final assessment of sugar for the 1969 crop, eight by Co-operative Credit Societies and seven by planters. Two protests were subsequently withdrawn; the Board maintained its previous assessment in all the other cases except one. A schedule of rates of transport was issued by the Board showing the maximum rates claimable by Millers for the transport of planters' cane from the outlying weighbridges to the Factory. Five appli-

cations for changes of delimitations of factory areas were received by the Board and rejected. Thirty-six permits were issued to middlemen. 14,110 contracts were in force covering some 26,890 planters. The number of planters who failed to enter into contracts before the 31st May was 601 compared to 470 in 1968. The number of weighbridges in operation was 104 compared to 106 in 1968. All the weighbridges were tested prior to the crop and found accurate. They were also tested during the crop and found correct. 4,472 surprise checks were carried out during the crop; in one case the weighing was found to be incorrect and the weigher prosecuted.

23. The total acreage under sugarcane was 207,000 arpents; of which 194,000 arpents were harvested compared to 203,000 arpents and 190,000 arpents respectively in 1968. 688,672 metric tons of sugar were produced compared to 596,549 metric tons in 1968. 582,290 long tons of sugar were exported; of which 380,000 long tons were sold at the negotiated price of £47.10shs per long ton which is the same as for 1968. 30,488 long tons of sugar were consumed locally. The United Kingdom was the largest customer taking 380,000 long tons followed by Canada taking 176,140 long tons, the U.S.A. taking 15,000 long tons, and Malaysia taking the remaining 11,150 long tons. The yield of sugar per arpent was 3.45 metric tons compared to 3.14 metric tons in 1968. Six sugarcane varieties, e.g. M 93/48, M 147/44, M 202/46, M 442/51, M 1356 and M 31/45 accounted for 71.9 per cent of the crop. 166,159 metric tons of molasses were produced of which 147,957 metric tons were exported. About 7,000 tons of molasses were used in the manufacture of Rum and various alcoholic products. The total production of alcohol reduced to 100° G.L. was about 1,242,000 litres; of which 30,000 litres were exported.

24. The close liaison established between officers of the Agricultural Services and those of the Mauritius Sugar Industry Research Institute was maintained. The research findings of the Institute were made available to the staff of the Agricultural Services through a series of lectures given by the staff of the Institute during the year as well as by the individual contact between officers.

25. The Ministry continued to direct the activities of the three Committees administering the Sugar Industry Rehabilitation Fund. The Sugar Planters Rehabilitation Fund continued to operate and manage the Mechanical Pool which is organised to clear and destone land planted under sugarcane. The Fund operated the Pointe-aux-Sables Cane Nursery to provide planters with planting materials free of diseases and pests and planting material of newly released varieties. However, small planters have again failed to take proper advantage of the healthy planting material available from the Nursery.

26. The Tea Industry was controlled by the Tea Control Board, which held regular meetings throughout the year. The Board determined the minimum price to be paid for green leaf by the factories. The Board was also concerned with reviewing the existing regulations and the Ordinance as well as establishing quotas for sale on the local market of teas of the various manufacturers. The compilation and issue of quarterly and annual statistical reviews were continued.

27. Eight factories were in operation during 1969 and all showed increases in production over 1968. The most marked increases being in the case of factories processing leaf from young plantations, Chartreuse showing an increase of 69.5 per cent and Dubreuil an increase of 122.9 per cent.

28. As at the 30th June, 1969, the area planted to tea totalled 8,400 arpents, an increase of about 4.1 per cent on the previous year. Plantation at fully maturity comprised 3,274 arpents, i.e. about 39 per cent of the total area under tea. The eight tea factories produced 3,191,253 kgs of made tea, an increase of 39.5 per cent over the previous year. Of this 80.5 per cent was exported.

29. As a result of setbacks from the 1960 and subsequent cyclones, the first tea Development Project which commenced in 1956 and was designed to develop 3,000 arpents of tea was extended on several occasions and the final clearings were completed late in 1966. The total area planted was 2,506 acres of Crown Land leased to Project planters and 289 acres of Crown Land developed by Government and leased to smallholders.

30. The second Tea Development Scheme, which commenced in 1962, envisaged the planting of 500 acres of Crown Land per annum by Government for distribution, when established as smallholdings of about 4 acres each. The current 1966-70 Development Programme envisages the planting of 4,000 acres at the rate of 1,000 acres in each of the four years.

31. Four-acre small holdings were found to be too large in the case of a large number of smallholders, who were unable to maintain their holding in a satisfactory condition. It has consequently been decided that small holdings will in future be of 2 acres each and that existing 4-acre holdings that were not being properly maintained would be subdivided into 2-acre plots. Smallholders are assisted by the Co-operative Department in arrangements for short term loans for the purchase of fertiliser and so on.

32. About 30,638 kgs of seed were harvested from the tea seed gardens and there was no need to import seeds from East Africa as in past years.

33. The rainfall at Wootton Tea Experiment Station was 104.60 inches compared to the average of 130.55 inches for the nineteen previous years.

34. The control of the Tobacco Industry is vested in the Tobacco Board which purchases, processes and stores all leaf produced at the same time that it provides an extension service to tobacco producers. Research services are provided by the technical staff of the Ministry of Agriculture and Natural Resources at the Richelieu and Pamplémousses Experiment Stations. These Stations are also responsible for the production of seeds of all commercial varieties, of which stock is held for two years' usings as an insurance against natural disasters. The acreages under Virginia and Amarello varieties were 344 and 263 arpents respectively compared to 505 and 448 arpents respectively in 1968.

35. Production of the cheaper air-cured Amarello tobacco has now reached about 45 per cent of the total production. During the year 449.6 metric tons of tobacco of all types was produced from 607 arpents compared with 727 metric tons from 953 arpents in the previous year. Usings of domestic leaf by the two Manufacturers in production were 529 metric tons compared to 533 metric tons in the previous year. 38.6 metric tons of tobacco leaf were imported in 1969 compared to 45.6 metric tons the previous year.

36. The Mauritius Hemp Producers' Syndicate continued to control the marketing of Aloe fibre, which is processed into sacks by the Government Sack Factory for use in the bagging of local sugar, of flour purchased from France and Australia and for export. The number of fibre factories operating in 1969 was 7 compared to 8 in 1968. These factories produced 1,310 metric tons of aloe fibre valued at Rs 1,587,532 compared to 1,318 metric tons produced in 1968 and valued at Rs 1,598,312. It was estimated that there were 1,840 arpents under aloe fibre of which 1,715 arpents were from wild plantations, i.e. the same acreage as last year. The import of jute cutting was 202 tons compared to 504 tons in 1968. 818,500 pure aloe sacks were produced, together with some 2,100,000 sacks containing a mixture of aloe fibre and imported jute. In addition filter press cloth, yarn, ropes and other fabrics were manufactured. About 1,770,000 sacks were exported to France, Australia and South Africa. The operating loss of the factory was further reduced to Rs 18,103 compared to Rs 273,345 in 1968.

37. There were 32 pigs of all ages of the Large White Breed at Curepipe Livestock Breeding Station at the end of the year. 52 young boars and 33 gilts were sold to breeders and 1 boar and 6 gilts to Centre d'Elevage of Reunion Island.

38. At the end of the year the herd of goats at Palmar comprised 112 Anglo Nubians, 50 Jumna Pari, 3 British Alpines and 10 Rodriguans, 3 bucks and 1 doe of Jumna Pari; 2 bucks and 2 does of Jumna Pari and Rodriguan Crosses and 1 Anglo Nubian buck and 1 buck and 1 doe of Anglo Nubian and Rodriguan Crosses were sold to breeders.

39. At the end of the year at the two Livestock Breeding Stations of Curepipe and Palmar there were 315 heads of cattle of the Creole Breed and 225 heads of cattle of all ages of the Ongole and Boran breeds and their crosses. The Sahiwal Bull (Rajah), a gift of the Government of India, received in January 1967, is stationed at Palmar since August 1968 and has been used to service a certain number of females of the Boran and crosses of Boran-Ongole. Improvement by selection within the Boran Breed and by crossing of the Ongole with Brahman X Ongole bulls has been continued. 2 Brahman X Ongole and 1 Ongole Steer were sold for draught purposes.

40. The Poultry Breeding Programme was continued and parent stocks of hybrid-7 and hybrid-4 strains from F and G Sykes were maintained for the production of layers as well as Cobb's parent stock and Ledbreast Pilch for the production of broilers. 64,630 chicks were hatched compared to 110,636 in 1968. They were sold as day-old, month-old and point-of-lay pullets for the production of eggs and as broiler chicks to commercial broiler producers; in addition day-old and month-old male chicks from laying stocks were sold for backyard production of poultry meat. 32,581 broiler chicks were supplied to the five established commercial broiler producers compared to 54,464 chicks supplied in 1968. 5,485 kgs of dressed chicken from trials and culls were sold to the public for consumption as compared to 7,880 kgs sold in the previous year.

41. The policy of importing high grade Friesian semen from Kenya was discontinued because of low conception rates. Semen from our Friesian bulls is used in Moka district and elsewhere on demand; semen from the Creole breed is used for artificial insemination in the rest of the island. 8,680 cows were inseminated compared to 7,900 in 1968 with a conception rate of 61.2 per cent for local Creole semen and 57.3 per cent with Friesian semen.

42. The production of feed at the Livestock Feed Factory showed a slight decrease compared to last year. 4,709 tons of feed were manufactured compared to 5,211 tons in 1968. Eighteen different types of feed were offered for sale by the factory, and 4,802 tons were sold compared to 5,223 tons in 1968.

43. The health of livestock at the various experimental stations on which stock is kept continued to be satisfactory as was the animal health picture of the island. Field Staff of the Veterinary Services Division attended to cases of which 97 cases of sterility, 575 cases of mineral deficiency, 451 cases of udder trouble.

44. The Animal Health Laboratory received a total of 1,695 specimens during the year for pathological, parasitological, bacteriological and haematological examinations. The work of the Laboratory was concerned with the investigation of specimens submitted as well as with the preparation of vaccines, animal disease surveys and research. Vaccine production was restricted to Inactivated Newcastle Disease Vaccine and Fowl Pox Vaccine of which 165,000 and 172,000 doses respectively were produced. In addition, 75,000 doses of Live Newcastle Disease Vaccine were imported at regular intervals throughout the year from Madagascar.

45. The vaccination services for poultry commenced in 1965, was continued. The demand for this service decreased again slightly this year to 55,564 birds (poultry) compared to 57,821 birds vaccinated against Newcastle Disease and Fowl Pox in 1968. The vaccinators have been trained to give simple advice on management and hygiene to poultry farmers.

46. To prevent the introduction of infectious/contagious diseases into Mauritius, Animal Quarantine facilities were maintained at Roche Bois and Reduit. During the year 12,676 bullocks, 2,667 sheep and 5,632 goats from various countries were received at the Quarantine Station. The importation of frozen beef and beef products in 1969 showed a decrease of about 10 per cent compared to the previous year; in contrast the importation of frozen mutton and offals showed a substantial increase. The importations of frozen goat meat and offals and of frozen poultry were considerably reduced.

47. Once again there has been no importation of eggs.

48. The Crop Extension Services were concerned mainly with increasing productivity per acre by improved crop husbandry to ensure better yields and higher income for farmers. Sugarcane and food crop growers were visited regularly. Special emphasis was made, as in past years, on the rational use of complete fertilisers for crops and the timely control of pests and diseases. Work was also centered around the replacement of prohibited sugarcane varieties by varieties more resistant to diseases. Special attention was also devoted to encouraging rice farmers.

49. Eighteen fertiliser demonstrations on sugar canes were established to show the effectiveness of fertilisers. Farmers were conducted round various demonstration centers and in certain areas to show proper techniques of crop cultivation and poultry breeding. Ninety-eight meetings of small farmers were convened during the year throughout the island. The main subjects discussed at these meetings were the use of complete fertiliser and their time and method of application, proper land preparation, choice of varieties, use of healthy cane planting material, seed selection, timely harvest, control of pests and diseases, choice of fungicides and insecticides and precautions needed in their use, the eradication of cane varieties susceptible to gummosis and their replacement by resistant varieties, maximum land utilisation, soil conservation, and rice cultivation. Visual aids were extensively used. Again because of limited field staff, contacts with planters were mainly through intensive group work. Lectures were given to leaders of rural youth clubs at Centre de Flacq, Rivière des Anguilles and Arsenal Demonstration Centres on general aspects of agriculture with a view to providing them with basic training in agriculture.

50. There prevailed an unusually dry period from August to November when infestations of Red Spider mites and pod borers were very high. The rhinoceros beetle has been spreading to the South and South West of the island. Gumming disease of sugarcane was less severe than in the previous year.

51. Small planters and sugar estates have continued their past efforts in intercropping of virgin sugarcane fields and also interlines of ratoon canes in certain localities.

52. The six demonstration centres run by the Extension Services continued to supply to farmers a wide range of planting materials of food crops, fruit trees and fodder crops. Demonstrations were carried out on varieties of groundnut, acacia, cassava, sweet potatoes. Rice seeds were made available from the centres. Anglo-Nubian goats on demonstration centres serviced goats brought to the centres by breeders. In addition a number of Anglo-Nubian bucks and does were sold to breeders. The silo pits were again unutilised because of lack of interest from cow keepers towards silage.

53. The Mare Choisy remains a centre for local rice production. Mare D'Australia was further developed for rice growing. The main road leading to Mare d'Australia and streams and drains were improved. School vegetable gardens are almost inexistant but fruit trees and ornamentals have once again been supplied to plant school yards. The poor institutions were visited regularly and advice and vegetable seed given.

54. To facilitate the implementation of the Northern Irrigation Pilot project the extension officer of the district met farmers of the localities involved in several meetings. Farmers from Réunion Island were received and conducted to the northern districts to visit their Mauritian counterparts. The Peace Farm and the Young Farmers Clubs were given assistance.

55. The Rural Youth Clubs established in 1967 in various parts of the Island to help in diversifying the agricultural economy are flourishing. Close cooperation has been maintained with the Youth Service Division of the Ministry of Education.

56. At the Curepipe Experiment Station the reclamation of the marshy area continued and three more arpents were brought under fodder grasses. Roads and drains have also been improved. Trials with grasses and legumes were taken over by the FAO/UNDP Project but the station continued to supply fodder to the Livestock Breeding Station. The orchards were maintained with Juddoo grapefruit again showing its great potential. The Persimmons fruited but the fruits were unpalatable. The trials on *Colocasia esculenta* var *carri* indicated that close spacing increased yields.

57. The seasonal and variety trials of rice continued and indicated that growth in winter was very slow.

58. Breeding of ducks and geese continued.

59. Plaisance Experiment Station continued to be the main source of planting material for the three varieties of coconuts of Malayan Dwarf and for Pemba. The fruits being sent to Barkly Experiment Station and Abercrombie Nursery to be raised as seedlings for sale. The orchard crops were affected by drought, but it was possible to produce good seed crops of various vegetables.

60. At the Central Experiment Station at Réduit the citrus orchard was maintained and information is still being collected on management methods and pests and disease control. Four legumes have been planted as cover crops in part of the orchard they are: *Desmodium intortum*, *Phaseolus atropurpureus*, *Glycine javanica* and *Vigna marina*, their growth has been satisfactory. Banana, peach and avocado collection orchards were maintained as well as the casava and grass collections.

61. The grass plantations at La Ferme were maintained and continued to supply cow-keepers of the region with fresh fodder.

62. Improvement of the pastures at Palmar continued, new stone walls being built to enclose the paddock and with the planting of grass and acacia in the paddocks. The coconut plants were again severely attacked.

63. Barkly continued to be the centre for seed processing and sale as well as for propagation and sale of plants. Some 49,300 lbs of vegetable and paddy seed were processed. Sale of seeds and plants were to the value of Rs 50,238.77. Budwood of four varieties of oranges were received from the United States: Hamlin, Navel, Pera and Valencia, the virus free budwood has been grafted on the following rootstock, Rusk, Troyer and Morton Citranges, Sumki and Cleopatra Mandarin, Rangpur lime and trifoliate orange. The peaches and grapes fruited well but again all methods of control of the fruit flies failed.

64. At Abercrombie Nursery, of the grape varieties only *Citronelle* fruited. The mango orchard was maintained. Sale of plants produced Rs 4,823.20. As usual, crops of various vegetable seed were produced.

65. The Royal Botanic Gardens at Pamplémousses attracted the customary large number of visitors throughout the year and the work of identification and labelling of plants progressed. It was not possible to control the rhinoceros beetle in the palms, but general sanitation in the gardens was carried out specifically to reduce the number of breeding places of the beetle. As reported last year part of the marshy area has been converted into paddies and 18 new varieties of rice released from quarantine were grown in observation and multiplication plots.

66. At the Pamplémousses Experiment Station tobacco was grown experimentally and for seed production. Vegetable seed was also produced and a trial on maize indicated that the varieties Israel 22, Hybrids 157, 170 and 180 were potentially higher yielders than the local variety.

67. The important development at Bois Marchand was the planting of an orchard of 1,114 mango plants of different varieties, this latest establishment of a mango orchard follows the establishment of the new orchards at Abercrombie and Richelieu nearly ten years earlier and is essential for providing continually orchards of various ages of this fruit crop which is growing in importance.

68. Pointe-aux-Piments and Arsenal fodder areas were maintained despite the difficulty occasioned by stray goats.

69. The fields at Richelieu Experiment Station have been redesigned on a rectangular pattern which will facilitate experimental work and irrigation. The station continued its production of seed for tobacco growers and Amarello seedlings for small planters. No new or imported varieties were released during the year, Yellow Mammoth still being the best under our conditions. Various Burley and Maryland varieties were on trial as well as flue cured varieties. Two oriental varieties were also grown. Tobacco worth Rs 29,438 was sold to the Tobacco Board.

70. Shortage of irrigation water is alarmingly becoming a regular feature with the intensification of cropping on the Station, but crops of maize and groundnuts were grown experimentally.

71. The mango orchard was maintained and the crop sold by tender.

72. On tobacco *Alternaria* leaf spot was more severe than *Cercospora* leaf spot this year while at Ville Valio a severe leaf spotting of variety NC 95 was caused by *Phyllosticta tabaci*. Mosaic and nematodes also caused damage. Bacterial soft rot on potatoes was prevalent and caused by careless packing and handling of seed. The bronzing and yellowing of rice leaves reported earlier was seen on varieties Begami, Saturn, YRL 1, YRL 2, and IR 8 and Taichung Native 1 but no causal organism has yet been found. Tobacco mosaic virus suspected to be the acuba strain was severe on tomato in the south. Garlic rust (*Puccinia allii*) first observed last year was confirmed at Barkly Experiment Station; its economic importance has not been assessed, but sprays of "Zineb" gave satisfactory control.

73. Control of plant and animal products at points of entry into Mauritius and the issue of permits and phytosanitary certificates continued to be the responsibility of the division: thus 674 plant import permits, 946 phytosanitary certificates and 2,500 certificates of examination were delivered as well as clearance to 112 ships and 786 aircrafts, including 77 fumigations at the airport. The quarantine greenhouses housed 34 rice varieties, 3 varieties each of tobacco and cotton and clones of tea and grape vines. The sugarcane quarantine greenhouses were used for part of the year to grow 23 rice varieties and eight potato varieties.

74. Studies on the biological control of the stable flies *Stomoxys nigra* and *S. calcitrans* continued and encouraging results were obtained with the *Pteromalid* parasites. The Rhinoceros beetle attack in the south progressed but does not seem to get worse in the North. Borer attacks on rice can be important but control measures have been advocated. *Thrips tabaci* was recorded on lettuce for the first time. The entomology division also carried out spraying of imported cattle against tick and also fumigation of warehouses and the dusting of the granary against insects.

75. The Chemistry Division analysed the raw materials for livestock feed preparation as well as the prepared feed. Also various analyses were carried out for the UNDP/FAO Meat and Milk Project on feed, dung, urine, grasses and scums, and also milk. Soil of tea areas were tested for pH and of small planters for pH and available phosphate and potash. A new method for rapid determination of the oil content of groundnuts was developed and methods for the rapid determination of pesticide residues on agricultural produce are being worked out.

76. The Engineering Division was responsible for the servicing, repair and maintenance of all departmental vehicles, tractors and machinery. At the Central Workshop some 844 vehicles, tractors, lawn mowers, sprayers, trailers and other agricultural machines were serviced and/or repaired. Miscellaneous equipments were made for various divisions. The division was also charged with the construction of buildings provided for in the Development Programme.

77. The Livestock Feed Factory sold 4,708 tons of livestock feed, manufactured from raw materials all imported except for molasses and a certain quantity of locally produced maize. Eighteen different kinds of livestock feed were offered for sale.

78. The enforcement of the Fisheries Regulations and the collection of fish landing statistics were continued. The operation of the flying squad was continued, and instead two additional control posts were established on the coast. 257 contraventions were established, 96 in connection with illegal nets and 11 with explosives. 1,350 metric tons of fish were landed of which 22 per cent were obtained by net fishermen.

79. Work at the Mahebourg Fish Farm on the rearing of oysters and a number of other species of molluscs was continued.

80. The UNDP/FAO Fisheries Development Project became operational on 14th April, 1969. As reported last year the project was in fact started in October, 1968 with the arrival of the marketing expert. With the appointment of a master fisherman the vessel "Investigator" made some fishing trials.

81. During the year the ill effects of the 1968 cyclones continued to be felt in Rodrigues. Relief work had to be organised. Some new roads were opened and some old ones repaired. 115 acres were re-afforested. 81 new unit farms were stabilised. Pastures were established and land cleared to grow food.

82. The value of exports from Rodrigues was about the same as for last year, i.e. approximately Rs 1.5 million. There was a marked reduction in the number of heads of cattle exported but an almost 30 per cent increase in the number of sheep and goats exported. The export of onion and garlic decreased by almost 16 per cent to 542.10 metric tons.

83. The Agricultural Training Farm, established at Marechal at the end of 1964 and financed largely by the United Kingdom Committee for Freedom from Hunger Campaign, has continued to develop most satisfactorily under the direction of the Reverend Father H. J. Smith. This training Farm has now become firmly established and will no doubt play a useful role in the agricultural development of Rodrigues.

II. Boards and Committees

84. The Chief Agricultural Officer or his representative served on the following boards and committees:

Agricultural College Advisory Board

Agricultural Marketing Board

Board of Agriculture, Fisheries and Natural Resources

Board of Examiners for the Registration of Agricultural Chemists

Cane Release Committee

Comité de Collaboration Agricole Maurice — Réunion — Madagascar

Cyclone and Drought Insurance Board

Fisheries Committee

Irrigation Committee.

Land Acquisition Board

Land Settlement Committee

Malaria Advisory Board

Mauritius Sugar Industry Research Institute Executive Board

Mauritius Sugar Industry Research Institute Advisory Committee

Northern Plain Irrigation Pilot Project Executive Committee

Sugar Industry Reserve Fund Committee

Sugar Millers' Rehabilitation Fund Committee

Sugar Planters' Rehabilitation Fund Committee

Tea Control Board

Tobacco Board

III. Board of Agriculture, Fisheries and Natural Resources

85. The Board functions under Ordinance No. 29 of 1957. The following advisory committees were set up by the Board for specific purposes:—

(a) The Cane Release Committee

(b) The Fisheries Committee

(c) The Irrigation Committee

(d) The Land Settlement Committee.

86. The Board met on one occasion only to make recommendations regarding the composition of the various sub-committees.

87. The list of cane varieties approved for cultivation in 1969 by the Cane Release Committee was as follows:

M. 134/32 (Red, white and striped)	M. 13/53
*M. 112/34	M. 13/56
*M. 423/41	M. 377/56
‡M. 147/44	Ebene 1/37
M. 31/45	Ebene 50/47
M. 202/46	*BH 10/12
M. 93/48	†B. 3337
M. 99/48	†B. 34104
M. 253/48	B. 37161
M. 409/51	B. 37172
M. 442/51	N. Co. 376

88. The Fisheries Advisory Committee met on two occasions. It considered matters relating to the fishing industry in general and in particular sardine fishing, allocating gill net and large net permits and control of illegal fishing.

89. The Irrigation Committee met on eleven occasions. It was concerned with the allocation of water for irrigation purposes from the Magenta canal and La Ferme and La Nicolière reservoirs, the repair of the Magenta canal to reduce losses, the allocations of irrigation water to new planters or increased allocations to planters with existing water rights.

90. The Land Settlement Committee met on two occasions. It considered the revision of rents on land settlement as an instrument in agricultural diversification. Its main business remained the selection of suitable tenants and advice on administrative problems relating thereto.

IV. Mauritius Chamber of Agriculture

91. The Chamber of Agriculture continued to play an important role in the agricultural affairs of the country. Its representatives took part in the annual discussions in the United Kingdom in connection with the Commonwealth Sugar Agreement. It appointed a committee to administer the Sugar Industry Reserve Fund as well as nominated representatives to sit on numerous boards and committees. The work of this organisation was fully reported in its annual report.

*To be unrooted before 31st December, 1969

†To be unrooted before 31st December, 1970

‡To be unrooted before 31st December, 1973

V. Comité de Collaboration Agricole Maurice — Réunion — Republic of Malagasy

92. The eighteenth annual meeting of the Committee took place in Madagascar from the 21st to the 28th October, 1969. Six delegates from Mauritius, four delegates from Réunion and six delegates from Madagascar attended the meeting. Control measures of the Fiji disease of sugarcane, exchange of students between the three territories, the scale insect of the sugar cane were among matters discussed as well as visits made during the past year and to be made in the following year by scientists and technicians of the three territories.

VI. The Cane Planters and Millers Arbitration and Control Board

93. The Cane Planters and Millers Arbitration and Control Board operated under the Sale of Cane (Control) Ordinance. The executive machinery of the Board was run as a division of the Ministry of Agriculture, Natural Resources and Cooperative Development (Agricultural Services).

MEETINGS OF THE BOARD

94. The Board held twenty one meetings during the year as follows:

Three meetings in connection with the assessment of sugar to planters;

Six meetings in connection with the protests against the assessment of sugar;

Three meetings in connection with the changes of delimitation of factory areas;

Seven meetings in connection with cane testing;

One meeting in connection with the rate of transport, the price of molasses, and the refund of cost of transport;

One meeting in connection with the closing down of weighbridges.

CANE TESTING

95. The canes supplied by 200 planters or group of planters, and by 128 estate sections belonging to miller-planters were tested separately. The total number of tests carried out at 21 factories reached 22,032. The corresponding figures for the 1968 crop were 19,554 tests, in respect of 250 planters or group of planters and 132 miller-planter estate sections supplying canes to 22 factories.

ASSESSMENT OF SUGAR

96. Following the publication of final assessment of sugar to planters for the 1968 crop, 8 co-operative credit societies and 7 planters lodged protests against the awards made by the Board.

97. Following the hearing of the protests, one Cane Sales Union and 1 planter withdrew their protests. In other cases, with one exception, the Board maintained its previous assessment.

COST OF PRODUCTION

98. Questionnaires were forwarded to 50 planters, selected according to the weight of cane produced, and to the twenty-two sugar estates with factories to secure the data necessary for the computation of costs of production.

TRANSPORT COSTS

99. Prior to the crop, a schedule of rates of transport was forwarded to sugar estates with factories showing the maximum rate claimable by millers for the transport of planters' canes from the various outlying weighbridges to the factory in each factory area.

100. The schedule was based on the following formula for transportation by road:

$$C = \text{Rs } (2.30 + .22m)$$

where 'C' is the cost of transport per ton of cane and 'm' the number of miles over which transport is effected.

101. According to law, the reimbursement of the cost of transport of planters' cane even by light railway is claimable by millers at the Road Rate, and limited to the cost of transport over a maximum of four miles. Also millers have to reimburse planters for expenditure incurred by them for transport of their cane over distances in excess of four miles. In consequence reimbursement is claimable by planters for distances in excess of four miles at the rate of Re 0.22 cs. per ton mile.

DELIMITATION OF FACTORY AREAS

102. Five applications for changes of delimitation of factory areas were received; all were either rejected or not entertained. Following the closing down of a factory, its factory area was divided into three parts which were included in the three adjoining factory areas.

PERMITS TO MIDDLEMEN

103. Permits were issued to 36 middlemen for the crop.

COMPLAINTS AGAINST MIDDLEMEN

104. There were 21 complaints made by planters against middlemen. Nearly all the disputes were settled between the parties through the good offices of the Board.

105. Middlemen were requested to come to the Board's office and have their books of account examined by the Accountant. Their accounts were found to conform with the instructions issued to them as to the way these had to be kept.

CANE CONTRACTS

106. There were 10,851 contracts registered by the Board. Total number of contracts in force for the crop was 14,110 covering some 26,890 individual planters.

BREACH OF THE SALE OF CANE (CONTROL) ORDINANCE

107. Three cases of breach of Sale of Cane (Control) Ordinance were reported to the Police. In two cases, the accused party was sentenced to a fine and in the third case the defaulter was prosecuted but the outcome is not known yet.

108. The number of planters who failed to enter into contract before the 31st May totalled 601. In 1968, the corresponding number was 470. Eight planters were prosecuted and one fined for late signing of contract.

CANE VARIETIES

109. During 1969, the varieties approved for planting were the following:

M. 134/32 (red, white and striped), M. 31/45, M. 202/46,
M. 93/48, M. 99/48, M. 253/48, M. 409/51, M. 442/51,
M. 13/53, M. 13/56, M. 377/56, Ebene 1/37, Ebene 50/47,
B. 37161, B. 37172, N.Co. 376.

The following varieties have to be uprooted:

M. 112/34 before 31st December, 1969
M. 423/41 before 31st December, 1969
BH 10/12 before 31st December, 1969
M. 147/44 before 31st December, 1973
B. 3337 before 31st December, 1970
B. 34104 before 31st December, 1970

CONTROL OF WEIGHBRIDGES

110. The number of weighbridges in operation was 104, compared with 106 in 1968, 2 having closed down with the Board's approval. All the weighbridges were tested for accuracy prior to the beginning of the crop. 98 were found to be correct on first examination. One additional inspection was made in each case for the 6 remaining weighbridges. All weighbridges were again tested for accuracy in the course of the crop and were found correct.

SURPRISE CHECKS CARRIED OUT AT WEIGHBRIDGE DURING THE CROP

111. During the crop, 4,472 surprise checks were carried out and 4,355 vehicles were reweighed (2,770 lorries and 1,585 carts). In one case the weighing was found to be incorrect and the weigher prosecuted.

VII. The Sugar Industry

CROP RESULTS

112. During the growth period rainfall was below normal, particularly from November to mid-January. Thereafter rainfall, though still below normal, was sufficiently well distributed to produce a crop of cane which was second only to that of 1963, the all-time record.

113. Crop started with a low yield of sugar, but during the second half of the crop period conditions became favourable to maturation, with the result that yield increased markedly. Finally, the yield was only slightly inferior to that of 1968, i.e. was about the average of the past few years.

114. Hereunder are some of the crop results compared with those of 1968:

	1969	1968
Area cultivated, arpents ...	207,000	203,000
Area reaped arpents ...	194,000	190,000
Cane produced, metric tons ...	5,824,235	5,152,240
Sugar produced, metric tons ...	668,672	596,549
Tons of cane per arpent ...	30.0	27.1
Tons of sugar per arpent ...	3.45	3.14
Yield of sugar per cent cane ...	11.48	11.58
Crushing rate, hourly metric tons...	106.4	101.9
Crushing rate, daily metric tons ...	2,312	2,020

CANE VARIETIES

115. In order of importance, the main varieties making up the 1969 crop were the following: M 93/48, M 147/44, M 202/46, M 442/51, M 13/56 and M 31/45. These varieties accounted for 71.9 per cent of the crop; the remaining 28.1 per cent were made up of E 50/47, M 377/56, B 37172 and E 1/37 and other varieties.

QUOTAS AND PRICES

116. There were no changes from the previous year, and the negotiated price quota for the calendar year 1969 remained 380,000 long tons at the price of £47-10s.

EXPORTS

117. The exports of sugar were as follows:

Destination	Long Tons	
	1969	1968
United Kingdom ...	380,000	414,301
Canada ...	176,140	139,200
Malaysia ...	11,150	—
U.S.A. ...	15,000	15,400
TOTAL ...	582,290	568,901

Apart from the sugar exported, there were 30,488 long tons consumed locally.

MOLASSES AND ALCOHOL

118. The production of molasses for the crop amounted to 166,159 metric tons. During the calendar year, 147,957 metric tons were exported. About 7,000 tons of molasses were used for the manufacture of rum and various alcoholic products. Alcohol produced amounted to about 1,242,000 litres of pure alcohol, the greater part of which was rum and denatured spirit. A small part was used for the manufacture of vinegar and perfumes. A limited quantity, amounting to 30,000 litres, was exported.

VIII. Tea Industry

TEA CONTROL BOARD

119. The Board which was established under the Tea Industry Control Ordinance (No. 29 of 1961, as subsequently amended) met 15 times during the year. Mr. K. Gujadhur was appointed as Executive Assistant and the Board office was moved to Réduit. The Board again reviewed the legislation governing it. The question of fixing the minimum price for green leaf was examined a number of times and a modification of Schedule A of the Tea Industry Control Regulations, 1961 was accepted. The minimum price was fixed at 28 cents for the period July to September and 27 cents for October and 26.5 cents for November and December.

STATISTICAL

120. The Board continued to issue quarterly and annual statistical reviews.

CLIMATE

121. The year was characterised by particular favourable weather in the first half and good crops were then obtained; the later part of the year, however, was not as good as last year, less tea being made in the third quarter than in the same period last year.

TEA FACTORIES

122. Eight factories operated during the year and they all showed increases in production over 1968. The increases were particularly marked, as expected, in the case of factories processing leaf from young plantations i.e. Chartreuse where the increase was of 69.5 per cent and Dubreuil 122.9 per cent.

MAURITIAN TEA

123. Production amounted to 3,191,253 kilos in 1969 compared to 2,287,791 kilos in 1968, an increase of 39.49 per cent was therefore registered. The quantity released for export was 2,558,788 kilos and local sales amounted to 514,009 kilos; the corresponding figures for 1968 were 1,727,343 kilos and 532,373 kilos respectively. Tea continued to be sold on the South African market by private treaty and on the London market where prices declined during the year.

DEVELOPMENT PROJECT

124. The first Tea Development Project which was commenced in 1956 was designed to develop 3,000 arpents under tea during the five years 1956-61. As a result of successive set backs starting with the 1960 cyclones the scheme was completed late in 1966. The total area planted was 2,481 arpents of which 212 was private land. Of the 2,269 arpents of Crown Lands, 1,980 arpents were leased to medium (50 arpents) and big planters (300 arpents). Seed at stake was used as the method of establishment and lack of uniformity is now very apparent in these plantations. Furthermore too early hard cropping together with indiscriminate pruning have adversely affected the bushes so that the yields now obtained from these plantations are still low. Remedial measures undertaken on these plantations are showing beneficial effects. The field average has been improved and more maintenance foliage is left on the bush before cropping starts.

NEW DEVELOPMENT PROJECT

125. During the year the last phase of the 1966-70 Development Project was entered into. Because of the change from seed at stake to nursery planting reported last year, no large scale planting was undertaken during the year.

126. The main activity was adequate land preparation to plant 2,000 arpents and to establish nurseries to provide the planting material. No seeds were imported during the year but a crop of 30,638 kilos was harvested from our own seed gardens.

127. Because of inadequate nursery space some seed had to be stored in p.v.c. lined gunny bags at the cold storage of the Agricultural Marketing Board (through the courtesy of the Manager). However it is expected that with sufficient nursery area prepared in advance storage would be eliminated or reduced.

128. Small holdings were distributed at Rivière du Bois at the end of the year. There were more plots—now about 2 arpents in size—than applicants. The problem of neglect by certain small holders still exists and enforcement of the conditions of the lease is fraught with difficulties as there is no special section dealing with enforcement. An Assistant Agricultural Officer and a Cadet were full time advising the small holders and there is no doubt that some small holders can be put among the best tea planters in the country.

129. Among project planters Belle Vue was under new management as Bon Espoir, but only part of the area has been rehabilitated. Belle Rive was still under the control of Tea Division. An area of about 35 arpents of Belle Rive where the tea stand was about 5 per cent was cleared and put to nursery. In general the project planters suffered from a shortage of labour during the months of peak production.

130. The areas under the control of Tea Division at the end of the year are now as follows:

Area Cleared

<i>Station</i>			<i>Approximate Area</i>
Merven	...	...	272 Arpents
Butte Chamont	...	...	233 "
Verdun	...	...	300 "
Grand Merlo	...	...	300 "
Herbereau de la Chaise	...	...	93 "
Five ways	...	...	300 "
Aga Hossen	...	...	178 "
Gilbert	...	...	300 "
			1,976

Nurseries

<i>Age</i>	<i>Station</i>		<i>Approximate Area</i>
0-1 year	...	Vuillemin	8.00 Arpents
		Dnbreuil	4.00 "
		Canneliere	13.50 "
		Diore	48.00 "
		Hornl	7.00 "
1-3 years	...	Petit Merlo	15.00 "
		Vuillemain	.50 "
		Riviere du Bois	2.50 "
		Dubreuil	3.00 "
		Diore	30.00 "
		Betty	8.00 "
TOTAL			139.50 "

Seed Gardens

<i>Station</i>		<i>Approximate Area</i>
Parc-aux-Cerfs		15 Arpents
Midlands		15 "
Reduit Experiment Station		1 "
N/Decouverte/Salazie		25 "
Reduit		1 "
De Rauville		28 "
TOTAL		85 "

Maintenance

<i>Age</i>	<i>Station</i>		<i>Approximate Area</i>
1-3 years	...	Vuillemin	79.90 Arpents
		Riviere du Bois	100.00 "
		Ferrette	43.00 "
		Diore	15.00 "
		Betty	144.00 "
TOTAL			381.90
4-5 years	...	Dubreuil	137.00 Arpents
		Riviere du Bois	506.00 "
		Canneliere	95.00 "
		Ferrette	76.00 "
		Dick	110.00 "
TOTAL			924.00 "
Mature	...	Wooton	70.00 Arpents
		Belle Rive	90.00 "
TOTAL			160.00 "

SMALL HOLDINGS RESUMED BY TEA DIVISION

<i>Age</i>		<i>Station</i>	<i>Area</i>
4-6 years	...	Riviere du Bois	108.48 Arpents
Mature	...	Vuillemain	87.42 "
		Dubreuil	81.00 "
TOTAL ...			276.90 "

Recapitulation

Cleared	1,976.00 Arpents
Nurseries	139.50 "
Seed Gardens	85.00 "
Maintenance	1,465.90 "
Small holdings resumed by Tea Division	276.90 "
TOTAL ...	3,943.36 "

TEA SEED

131. As stated earlier a crop of 30,638 kilos of seed was harvested from the seed gardens at Parc-aux-Cerfs, Midlands, Curepipe, Reduit, Nouvelle Découverte, Salazie and De Rauville. All the seed was planted, but only part of the seed could be germinated before planting as the seed fall was faster than the rate of germination and planting.

132. Highlands Sugar Estate had experimented on inter-planting of tea stumps in cane interrows. The cane was harvested in the milling season and it is now clear that stumps can be successfully transplanted in the last year of rotation in canefield.

133. Mon Désert Alma Sugar Estate cleared some 200 arpents of land and established a small nursery. The stumps planted last year grew well. Small plots of tea in canefields were planted at Ferney, Rose Belle and Reunion Sugar Estates.

PRODUCTION OF TEA BY FACTORIES

134. Mauritius produced 3,197,389 kgs of black tea. The output of factories over the past five years was as follows:

Calendar Years

<i>Factory</i>	1965	1966	1967	1968	1969
	<i>kgs</i>	<i>kgs</i>	<i>kgs</i>	<i>kgs</i>	<i>kgs</i>
Bois Cheri ...	580,290	279,548	587,657	640,164	797,026
La Flora ...	392,663	405,997	416,566	444,664	511,242
Chartreuse ...	262,879	453,556	505,421	435,813	744,719
Usine Corson	262,323	238,219	211,599	226,087	265,927
Pont Colville	95,416	87,138	121,690	111,154	152,446
Nouvelle France	143,262	165,758	209,470	205,979	269,314
Mare Anguilles	—	26,261	73,545	57,374	85,432
Dubreuil ...	—	—	64,294	166,556	371,283
TOTAL ...	1,736,833	1,974,357	2,190,242	2,287,791	3,197,389

135. Exports of tea during 1969 amounted to 2,573,480 kilos valued at Rs 14,639,168. The table below gives destination of exports for the past five years:

Destinations	Calendar Years				
	1965	1966	1967	1968	1969
	kgs	kgs	kgs	kgs	kgs
United Kingdom ...	1,064,109	1,193,743	1,076,533	766,658	1,173,223
South Africa ...	8,594	55,044	489,698	922,730	1,316,426
Ireland ...	12,550	14,333	2,205	—	33,397
Madagascar Republic (inc. Juan de Nova)	2,212	7,469	6,524	12,504	13,966
Reunion ...	241	3,722	982	1,962	1,895
Kenya ...	10,633	12,407	12,808	1,820	—
New Zealand ...	—	3,530	1,470	1,633	—
British Indian Ocean Territories ...	—	521	260	254	—
West Germany ...	4,524	2,409	—	1,225	—
Comores Islands ...	—	455	363	491	726
Malaysia ...	343	—	—	—	—
France ...	—	—	90	65	145
United States of America ...	—	—	1,599	—	17,647
Seychelles ...	—	—	—	500	15,529
Canada ...	1,029	1,293	3,361	—	926
Singapore ...	—	—	980	—	—
Australia ...	—	—	20	—	—
TOTAL ...	1,104,235	1,294,926	1,597,253	1,709,842	2,573,480

TEA EXPERIMENT STATION

136. Climatic conditions at Wooton were such that fainfall exceeded the normal only in April, July and December. September, October and November were particularly dry, about 31 per cent of the normal rainfall being obtained. These conditions gave a less than good start to the new crop season.

137. The table below shows the monthly distribution of rainfall for the year compared with the 20 year averages:

	1969				1969			
	Ins/Month	1950-1969 Ins/Month			Ins/Month	1950-1969 Ins/Month		
January ...	17.36	6.32	July ...	11.27	12.78			
February ...	16.74	12.01	August ...	9.69	9.67			
March ...	19.83	10.62	September ...	6.96	3.41			
April ...	13.50	16.86	October ...	6.30	1.12			
May ...	10.05	8.27	November ...	6.91	2.00			
June ...	10.83	5.00	December ...	12.95	16.54			
Year								
1969		1950-1969						
104.60		130.55						

138. Records of rainfall, sunshine and temperature continued during the year.

139. The amount of leaf harvested at the Tea Experimental Station, Wooton during the year amounted to 235,590 kilos compared to 166,983 kgs in 1968. Monthly yields in kilos and percentage of total is given below:

	Kgs	%		Kgs	%
January ...	33,823	14.36	July ...	2,280	0.97
February ...	30,626	12.99	August ...	1,543	0.65
March ...	37,359	15.86	September ...	6,786	2.88
April ...	30,099	12.78	October ...	19,193	8.15
May ...	17,201	7.30	November ...	15,311	6.49
June ...	6,958	2.96	December ...	34,429	14.61
TOTAL = 235,608 kgs					

Average yield in kgs per arpent : 3,380 kgs.

140. As a result of the corrective uniformising treatment given last year the fields are now in what it is hoped to be 2-year or 3-year pruning cycles. Also the crop during the end of season April, May and June were higher.

141. The heavy crop of the beginning of the year always presents a problem because of the number of absentees, public holidays and shortage of pluckers.

VEGETATIVE PROPAGATION

142. The propagating equipment was repaired and the propagating houses have operated throughout the year except for short breakdown periods. The plants produced will be planted out during the year 1970 so as to increase the number of mother bushes.

143. Cuttings were also put out in beds under fern shed and those taken in March—April succeeded best.

144. The mini manufacture equipment has been put in operation thanks to the help obtained from Mr. Raoul Corson jr. All the clones in Wooton will be retested under standard conditions with the help of Mr. Corson. Samples are then sent to London for report. Clones H 1 and H 6 have so far proved to be promising in quality.

145. No experiment was carried out on seedling in nurseries.

146. As stated in last year's report plots have been established for uniformity trial in which will be superimposed fertilisers and pruning trials. The recording continued during the year.

147. Various clones were tested with the help of Mr. Raoul Corson, jr. and all teas which do not come up to H 1 standard in quality will be rejected.

148. Propagation of *Flemingia congesta* by cuttings and seed continued.

149. Surveying of land under tea is still very slow. Most of the area under the control of the Division has yet to be accurately surveyed or even surveyed for the first time.

IX. Tobacco Industry

150. Production of cured tobacco was limited to the estimated requirements of local cigarette manufactures: British American Tobacco Co. (Mauritius) Ltd., and Amalgamated Tobacco Corporation (Mauritius) Ltd. No provision was made for the supply of cured tobacco to Consolidated Tobacco Co. Ltd., the Company having stocks on hand from the previous year, and proposes to commence operations in 1970.

151. The industry is controlled by the Tobacco Board which publishes annually a full report on the industry.

CROP CONDITIONS

152. Climatic conditions were very uneven throughout the year. Severe drought prevailed during the months of September, October and November, thus affecting the quality of the Virginia tobacco produced in the second season of the year.

153. The incidence of Virus diseases in the Amarello crop, was higher than in the preceding year. The incidence of leaf spot diseases, "frog-eye" and "alternaria" was negligible. Root diseases "black shank" and "bacterial wilt" were more severe than in the previous year, particularly in the Amarello crop.

154. "Root knot nematode" was observed here and there in plantations of both varieties, Virginia and Amarello, save in the variety NC 95.

155. Attacks of "cutworms" and "caterpillars" were higher than in the previous year, while attacks of "leaf miners" were negligible.

PERMITS

156. The number of permits for the cultivation of tobacco in 1969, was as follows:

			1968 <i>Arpents</i>	1969 <i>Arpents</i>
Flue-cured Virginia	...	...	505	344
Air-cured Amarello	...	...	448	263
TOTAL	...	...	953	607

157. Permits for a smaller acreage for both flue-cured Virginia and air-cured Amarello were issued in 1969, the decrease in acreage being due to the high stocks of leaf tobacco held by the manufacturers.

PRODUCTION

158. The production of tobacco in 1969, compared with the previous year, was as follows:

			1968		1969	
			<i>Arpents</i> <i>Cultivated</i>	<i>Kgs</i>	<i>Arpents</i> <i>Cultivated</i>	<i>Kgs</i>
Flue-cured Virginia	...	...	505	277,453	344	192,926
Air-cured Amarello	...	...	448	449,804	263	256,644
TOTAL	...	...	953	727,257	607	449,590

YIELDS AND RETURNS

			Average yield per arpent	
			1968	1969
			Kgs	Kgs
Flue-cured Virginia	...	...	549	561
Air-cured Amarello	...	...	1,004	976
			Average return per arpent	
			1968	1969
			Rs	Rs
Flue-cured Virginia	...	...	4,397	4,267
Air-cured Amarello	...	...	2,621	3,058
			Average value per kg	
			1968	1969
			Rs	Rs
Flue-cured Virginia	...	...	8.00	7.60
Air-cured Amarello	...	...	2.61	3.13

159. The price of flue-cured Virginia leaf was increased by 5 per cent save for the two top group of grades (BF and UMF), and the price of air-cured Amarello leaf was increased by 25 per cent for all grades, for 1969/70 crop.

QUALITY

160. Flue-cured Virginia and air-cured Amarello were of inferior quality than in 1968, as shown in the following table:

			Percentage of Bright and Medium grades				
			1965	1966	1967	1968	1969
Flue-cured	...	...	89	81	84	95	91
Air-cured	...	...	12	19	17	36	31

LOCAL MANUFACTURE

161. The manufacturers' purchases and usings of domestic and imported leaf were as follows:

1969-Purchases		Domestic	Imported	Total	% Total Imported	C.I.F. Value per kg.	
		Kgs	Kgs	Kgs		Imported Rs	Domestic Rs
B.A.T. Co. Mts. LTD...		475,697	38,652	514,349	5.9	13.12	5.47
A.T.C. Mts. LTD.		119,439					6.99
C.T.C. LTD.		20,073					6.73
TOTAL	...	615,209	38,652	653,861	5.9	13.12	5.64
1969-Usings		Domestic	Imported	Total	% Total Imported	C.I.F. Value per kg.	
		Kgs	Kgs	Kgs		Imported Rs	Domestic Rs
B.A.T. Co. Mts. LTD...		365,957	43,732	409,689	10.6	—	—
A.T.C. Mts. LTD.		163,193	93	163,286	—	—	—
TOTAL	..	529,150	43,825	572,975	7.6	—	—
1968		Domestic	Imported	Total	% Total Imported	C.I.F. Value per kg.	
		(Kgs)	(Kgs)	(Kgs)		(Rs)	(Rs)
Purchases	...	587,759	45,610	633,369	7.2	12.61	5.74
Usings	...	532,888	43,669	576,557	7.6	—	—

162. The percentage of imported leaf used in manufacture was 7.6 per cent in 1969, the same figure as in 1968, as illustrated in the following table:

		Year				
		1965	1966	1967	1968	1969
Per cent Imported	...	17.2	12.8	9.0	7.6	7.6

163. These figures indicate that usings of domestic leaf have decreased by Kgs. 3,738 in 1969, compared with 1968. Usings of air-cured Amarello leaf have continued to increase to the detriment of flue-cured Virginia leaf.

164. The average C.I.F. value of imported Virginia leaf was Rs 13.12 per kilo compared with Rs 8.94 per kilo for domestic Virginia leaf. The average value of air-cured Amarello was Rs 3.63 per kilo.

165. Domestic Virginia blended with imported leaf is used in the manufacture of "State Express Filter King 555", "Matinée", "Vogue" and "Embassy" brands of cigarettes which used to sell in competition with imported Virginia cigarettes. Since 1967, the demand for imported cigarettes has fallen to a low level, and competition with imported cigarettes is rather negligible.

166. Imports of leaf and cigarettes for the last two years are tabulated below:

		1968		1969	
		Kgs.	Value Rupees	Kgs.	Value Rupees
Cigarettes*	..	23,843	589,185	19,063	443,019
Leaf :					
U.S.A.		40,596	555,951	33,895	490,229
Other sources	...	5,014	19,210	4,757	16,987
Total leaf	...	45,610	575,161	38,652	507,216
GRAND TOTAL	...	69,453	1,164,346	57,715	950,235

167. Usings of domestic leaf have decreased by Kgs 3,738, while usings of imported leaf have increased by Kgs. 156 in 1969, compared with 1968; a net decrease of Kgs. 3,582.

WAREHOUSE

168. The buildings were properly maintained.

*Imported cigarettes are mainly for use as ships' stores.

X. Fibre Industry

169. The total production of Mauritius Hemp continued to be sold by the Mauritius Hemp Producers' Syndicate to the Government Sack Factory for weaving into sacks (1) to be used for the bagging of local sugar (2) to be used for flour purchased from France and Australia (3) for export. Comparative statistics in connection with production were as follows:

		1968	1969
Number of factories operating	...	8	7
Fibre produced (metric tons)	...	1,318,740	1,309,845
Value (Rupees)	...	1,598,312	1,587,532
Area under aloe (arpents) :			
Wild	...	1,715	1,715
Plantation	...	125	125

SACK FACTORY

170. This organisation is controlled by a Board which publishes annually a full report on its activities.

171. The factory purchased fibre produced locally and imported jute cuttings to the extent of:

		1968 Kgs	1969 Kgs
Aloe	...	1,318,740	1,309,740
Jute	...	504,010	201,846
The carry over from previous year was :			
Aloe	...	598,902	194,572
Jute	...	107,418	236,637
The factory consumed :			
Aloe	...	1,352,395	1,191,869
Jute	...	294,327	282,310
The carry over for the year was :			
Aloe	...	565,074	194,572
Jute	...	317,101	236,637

172. The prices paid for fibre were as follows:

		1968 Rs	1969 Rs
<i>Aloe Fibre :</i>			
Very Good	...	1,300.00	1,300.00
Good	...	1,250.00	1,250.00
Fair	...	1,225.00	1,225.00
Tow	...	1,000.00	1,000.00
Sisal	...	1,250.00	1,250.00
Cuttings	...	900.00	900.00
Ropes	...	900.00	900.00
<i>Jute :</i>			
Cuttings	...	589.50	772.74

173. The average price payable for aloe fibre was Rs 1,212 per metric ton and this will not be applicable for the year 1970 during which period a reduction in the cost of fibre is envisaged as the industry is being re-equipped with modern fibre decorticating machine.

174. The average price paid for jute cuttings was Rs 772.74.

175. The factory's output compared with that for 1968 was as follows:

		1968 Units	1969 Units
Sacks (6×8) 26½"×38" Aloe	...	651,000	518,500
Sacks (5×7) 26½"×38" Aloe/Jute	...	16,095	145,000
Sacks (10×10. ⅓) 25"×41" Aloe/Jute	...	141,750	418,149
Other sacks	...	6,400	28,959
Sacks (10×9. ⅓) 23.⅘"×43" Aloe/Jute	...	396,675	—
Sacks (10×11) Aloe/Jute	...	3,779	—
Sacks 6×8, 26½"×38" Aloe/Jute	...	11,000	—
Sacks (5×7) 26½"×38" Aloe	...	18,442	—
Potato Pockets 14½"×32" Aloe/Jute	...	302,000	766,425
Potato Pockets 13½"×32" Aloe/Jute	...	1,000	—
Date Bags Aloe	...	—	300,003
Cabbage Bags Aloe/Jute	...	—	193,518
Salt Bags Aloe/Jute	...	—	71,629
		<i>Yards</i>	<i>Yards</i>
Filter press cloth	...	14,146	13,454
Other fabrics	...	—	18,994
Sacking Cloth	...	2,754	—
		<i>Kgs</i>	<i>Kgs</i>
Yarn	...	16,097	22,009
Ropes	...	6,547	8,645
Other Fabrics	...	685	—

176. The Sugar Millers' requirements of sacks for 1969 were:

(6×8) 26½"×38"—Aloe	...	500,000 Units
(5×7) 26½"×38"—Aloe/Jute	...	500,000 Units

177. During the year ended 31st December, 1969, the following exports were made:

		<i>Units</i>
To France	: (10×10.1/3) Aloe/Jute sacks	... 352,803
To Australia	: (10×10.1/3) Aloe/Jute sacks	... 253,250
To Iraq	: Date Sacks—Aloe	... 300,000
To South Africa :		
	(a) Potato Pockets Aloe/Jute	... 685,000
	(b) Cabbage Bags—Aloe/Jute	... 140,000
	(c) Salt Bags—Aloe/Jute	... 40,000

178. During the year ended 31st December, 1969 the factory purchased 243,028 second-hand sacks for reconditioning.

179. 118,775 reconditioned sacks were exported to South Africa.

180. The operation of the factory resulted in a net loss of Rs 18,103. for the year ended 31st December, 1969, compared with a net loss of Rs 273,345 for the year ended 31st December, 1968.

181. The production and sales of reconditioned sacks showed a profit of Rs 24,941 for the year ended 31st December, 1969.

XI. Livestock

MILCH CATTLE

182. At the end of the year, the two Livestock Breeding Stations at Curepipe and Palmar carried a total of 315 heads of the Creole milch breed—83 males and 232 females. The average production of lactating cows was 5.8 kgs of milk per head per diem. There were 111 calvings: 56 males and 55 females. 10 heifers calved at an average age of 43 months. The average weight of bull calves at birth was 30.6 kgs and that of heifer calves was 28.3 kgs. At Curepipe Livestock Breeding Station over a lactation period of 305 days, first calvers yielded 5.05 kgs of milk per head per diem; the best performer yielded 7.4 kgs with a peak of 15.6 kgs. Over 305 days, second calvers yielded an average of 6.9 kgs of milk per head per diem; the best performer yielded 9.4 kgs with a peak of 14.5 kgs. Over 305 days, third calvers yielded 7.0 kgs of milk per head per diem; the best performer yielded 9.6 kgs with a peak of 20.4 kgs. Over 305 days, 12 cows, with more than 3 calvings, gave 6.4 kgs of milk per head per diem, the best performer yielded 9.7 kgs with a peak of 15.0 kgs.

HERD CATTLE

183. The Livestock Breeding Station at Palmar carried 225 heads of cattle of all ages of the Ongole and Boran breeds and their crosses. There were in all 58 calvings out of which 2 were from improved Brahman X Ongole breed and 3 were from Boran X Ongole and 26 of (Pure) Boran. During the year 49 calves of the above breeds were weaned at an age of 6 months. Two Brahman X Ongole and 1 (Pure) Ongole steers were sold for draft purposes. 1 Brahman X Ongole bull and 2 (Pure) Ongole cows were sold for slaughter.

PIGS

184. At the end of the year the total number of pigs at Curepipe Livestock Breeding Station was 32. 16 litters with an average birth rate of 9 piglets per litter and an average birth weight of 2.24 lbs were recorded. 17 litters were weaned with an average number of 6 piglets per litter and an average weight of 27.24 lbs per head at 8 weeks old. 52 young boars and 35 gilts were sold for breeding to local breeders. 2 boars and 6 gilts were sold to Centre d'Elevage of La Reunion. 10 young boars and 7 gilts were sold for slaughter.

GOATS

185. At the end of the year there were a total of 175 goats at Palmar Livestock Breeding Station. These were classified as follows: 112 Anglo Nubians; 50 Jumna Pari; 3 British Alpines and 10 Rodriguans. 51 does kidded during the year. 31 kids were weaned at the age of 6 months. 3 Pure bred Jumna Pari bucks; 1 doe; 2 Jumna Pari X Rod bucks; 2 does; 1 Anglo Nubian (Pure) buck and 1 Anglo Nubian X Rod buck, 1 doe were sold for breeding to local breeders. 1 Pure Jumna Pari buck and 1 doe; 1 Anglo Nubian (Pure) buck and 5 does, 1 Anglo Nubian X Rod buck and 1 British Alpine (Pure) doe were sold for slaughter.

186. The Division of Veterinary Services continued to play an important role in the development of livestock and poultry industry in Mauritius. Enjoying the unique health picture in the world, the development of poultry industry has nearly achieved self-sufficiency in poultry meat and for the third year running no eggs were imported from abroad.

POULTRY

187. The centre maintained parent stock of hybrid-7 and hybrid-4 strain from F. & G. Sykes of England for the production of layers. In addition the Poultry Breeding Centre maintained Cobb's broiler parent stock as well as parent stock of Ledbreast Pilch for the production of broiler chicks.

188. During the year the Poultry Breeding Centre hatched 64,630 chicks; 10,615 day-old pullets, 3,520 month-old pullets and 39 point-of-lay pullets for the production of eggs were sold to poultry keepers. To help production of poultry meat 32,581 broiler chicks were supplied to the five established commercial broiler producers and a few enthusiasts, and in addition 14,328 day-old and month-old male chicks from laying stock were sold for the backyard production of poultry meat. 5,485 kgs of dressed chickens and culls were sold for the table. The centre also provided 62 chicks to the Animal Health Laboratory for the testing of vaccines, 2 dressed poultry to the Plant Pathology Division and 15 point-of-lay pullets to the Agricultural Extension Services.

HYBRID 7

189. A total of 23,550 hybrid-7 chicks were produced, of which 8,544 day-old pullets, 2,320 month-old pullets and 11,551 day-old cockerels and 101 month-old cockerels were sold for eggs and poultry meat production respectively.

HYBRID-4

190. A total of 7,469 hybrid-4 chicks were produced of which 4,142 day-old as hatched. 1,200 month-old pullets and 605 month-old cockerels were sold.

BROILER CHICKS

191. A total of 33,611 broiler chicks were produced of which 32,549 day-old and 32 month-old were sold mainly to the broiler producers.

EGG PRODUCTION

192. 275,784 eggs were produced. The monthly production of the various breeds maintained during the year was as per *Annexure A*.

193. Out of the 275,784 eggs produced and 4,003 eggs carried forward from 1968, 142,996 eggs were sold for the table, 114,310 eggs were incubated for the supply of chicks to the public, 2,459 eggs were issued to the Animal Health Laboratory for vaccine production, 1,860 eggs to the Artificial Insemination Laboratory and 108 eggs to the Central Laboratory of the Ministry of Health. The stock in hand at 31st December was 2,792.

REPRODUCTIVE PERFORMANCE

194. During the year under review 64,630 chicks were hatched. The average fertility and hatchability were 78.5 per cent and 58.6 per cent respectively of all eggs set. The monthly reproductive performance of all breeders was as per *Annexure B*.

195. The monthly reproductive performance of all parent stock, breed-wise, was as per *Annexure C*.

IMPORT OF NEW STOCKS

196. To meet the demand for layers the following were imported from F. & G. Sykes.

197. 800 day-old parent stock-7 pullets and 120 day-old parent stock-7 cockerels; 200 day-old parent stock-4 pullets and 30 day-old parent stock-4 cockerels.

198. For the production of broiler chicks, 700 day-old parent stock Cobb's pullets and 105 day-old parent stock Cobb's cockerels were imported.

ARTIFICIAL INSEMINATION AND VETERINARY AID SERVICES

199. The number of breeders who have taken advantage of the artificial insemination service amounts to 8,680 compared to 7,900 in 1968 and 7,575 in 1967. The artificial insemination has been done with Creole (local) bulls' semen and Freisian bulls' semen. A total of 6,870 inseminations have been performed with local bulls' semen, 1,810 with Freisian semen. The average rate of conception for insemination with local bulls' semen was 61.2 per cent and that with Freisian semen 57.3 per cent.

200. The general condition of some of the Freisian bulls has not been satisfactory during the year and more frequent services have to be taken from the younger animals.

XII. Animal Health

201. There have been no epizootics during the course of the year. The animal health picture of the Island continued therefore to be satisfactory

CATTLE

202. No new cases of Mastitis were recorded at the Government Livestock Breeding Stations. In the field, compared to the previous year, Mastitis was of a decreased incidence. 451 cases were reported and those treated with ORBENIN (intramammary suspension) had been met with marked success.

203. 624 cases of digestive trouble reported were dealt with accordingly. In addition 508 cases of Dystokia, retention of placenta, uterine prolapse were reported and attended.

POULTRY

204. The Poultry Breeding Centre carried an average of 9,082 birds of all ages on a monthly basis. The mortality in adult stock during the year was 6.4 per cent and in the group 0—12 weeks the mortality was 19.7 per cent.

205. The overall analysis of mortality was as follows:

			<i>per cent</i>
C.R.D.	...	...	—
Leucosis	...	...	14.3
Encephalomyelitis	...	...	—
Lung congestion	...	...	13.3
Avitaminosis, Rickets etc.	...	...	19.8
Coccidiosis	...	...	5.7
Unabsorbed yolk, parasitism etc.	...	...	46.9

VACCINATION CAMPAIGN

206. The Vaccinators have vaccinated 55,564 birds (poultry) and delivered 11,695 doses of fowl pox and Newcastle dead vaccine.

TUBERCULIN TESTING

207. During the year 1,454 head of cattle at 14 Sugar Estates of the Island were tested (the percentage of positive reactors amounted to 6.3 per cent). The number of positive reactors amounted to 90, giving thus a percentage of 6.3 per cent on the total.

ANIMAL QUARANTINE SERVICE

208. To prevent the introduction of infectious/contagious diseases into Mauritius the provisions of the Animal Diseases Ordinance were rigidly applied to all imports of livestock and livestock products. The quarantine kennels, the cattery and the Poultry Quarantine Unit at Reduit and the Animal Quarantine Station at Roche Bois (near Port Louis) were maintained.

209. To ensure against the introduction of any diseases through the importation of live goats from Madagascar, the slaughter of these goats was restricted to the slaughter house at Roche Bois which is under the control of a fully qualified Veterinary Surgeon. Likewise, cattle from Madagascar were slaughtered at slaughter houses of Roche Bois, Rose Hill and Curepipe.

LIVESTOCK

210. Under the provision of the Animal Disease Ordinance 71 ships and 16 aircrafts carrying livestock were cleared by the staff of the Veterinary Services and all livestock, whether for slaughter or breeding purposes, was subjected to quarantine at the Quarantine Stations. During the year the following stock was received at the Quarantine Stations:

<i>Country of origin</i>		<i>Bullocks</i>	<i>Sheep</i>	<i>Goats</i>
Madagascar	...	12,472	—	2,396
Rodrigues	...	204	895	2,916
Australia	...	—	1,772	220

211. In addition 13 cagebirds from different countries were held in quarantine prior to release to importers. At Réduit 6 dogs imported from the United Kingdom and France were held in quarantine for a period of 6 months from the date of arrival. 1921 days-old chicks received from the United Kingdom underwent quarantine at the Poultry Quarantine Unit at Réduit prior to release to the Poultry Breeding Centre. Further 4,763 day-old chicks were imported from Canada by Messrs Food and Allied Industries, and 1,180 day-old chicks from the United Kingdom, by Mr. Joomye. 6 and 2 rabbits were imported from the United Kingdom and South Africa respectively, by Mr. R. J. B. Montocchio.

LIVESTOCK PRODUCTS

212. During the year 1,231 import permits and 500 landing permits were issued. All frozen meat landed was subject to veterinary inspection prior to release for sale. The following table summarizes the import of livestock products including frozen meat, offals, by-products of abattoirs and prepared livestock feed:

Frozen beef and beef products	...	...	759,338½ lbs
Frozen mutton and offals	...	...	1,555,108 lbs
Frozen goat meat and offals	...	...	39,233 lbs
Frozen pork and pork products	...	...	241,194 lbs
Frozen poultry	...	...	129,850 lbs
Eggs	...	...	Nil
Frozen turkeys, ducks & geese	...	...	10,069 lbs
Frozen rabbits	...	...	Nil
Livestock feed (Poultry, pigs, cattle, rabbit, dog and horse)	...	...	14,291,205 lbs
Fish meal for livestock feed	...	...	121,200 lbs
Bone meal for livestock feeds	...	...	157,472 lbs
Meat meal	...	...	574,000 lbs
Lucerne	...	...	Nil

SLAUGHTER DATA

213. During the year 1,586 calves, 333 cows inclusive of 56 slaughtered on human grounds and 2,135 bulls of the milch breed were slaughtered, producing 813,322 lbs of beef. In addition 543 herd cattle and 216 bullocks imported from Rodrigues were slaughtered yielding 182,976 lbs of beef. 11,383 bullocks imported from Madagascar were slaughtered and produced 3,374,924 lbs of beef.

214. Likewise 35,578 lbs mutton and 312,178 lbs goat meat were produced in Mauritius and another 164,256 lbs from 4,056 imported goats and sheep giving a total of 512,012 lbs. 1,095,058 lbs pork was produced in the country, including pigs imported from Rodrigues. In these figures offals and preparation are not included.

215. The Slaughter House returns revealed the following average weight of imported and local cattle slaughtered during the year:

Local herd cattle	...	...	234.9 lbs
Local milch cow	...	...	253.9 lbs
Local bulls of milch breed	...	...	199.2 lbs
Calves of local milch breed	...	...	192 lbs
Rodrigues cattle	...	...	256.5 lbs
Madagascar cattle	...	...	296.4 lbs

216. Up to 30th June, 1969, the Senior Veterinary Officer and from 1st July, 1969 the Officer-in-charge, Division of Veterinary Services, on behalf of the Minister of Agriculture and Natural Resources, authorised

5 week-ends for slaughter of unproductive females of the local milch breed. During the same period 35 permits were issued for the slaughter of males of the milch breed for wedding and religious ceremonies. During the year, 6 butchers were licensed to sell beef in meat shops licensed by the Ministry of Health.

SLAUGHTER HOUSE CONTROL

217. Under the Food Control Order 283 permits were issued for slaughter of unproductive cows of the milch breed as against 1,214 in 1968. In addition 56 animals of the milch breed were allowed slaughter on humane grounds.

218. During the year 24 cases of illegal slaughter of females of the milch breed were examined and certificates issued to the Police.

219. Likewise, 13 cases of alleged cruelty to animals were examined and certificates issued to the Police Force.

220. From the Meat Inspection returns 21 total and 653 partial seizures on account of bovine tuberculosis were reported among the Madagascar bullocks slaughtered at Roche Bois, Rose-Hill and Curepipe Slaughter Houses, giving 5 per cent of T.B. cases among a total of 11,383 heads slaughtered during the year.

221. In respect of the local stock of Zebu and milch animals, 7 seizures on account of bovine tuberculosis were reported, giving 0.1 per cent of T.B. cases among the total of 4,597 head slaughtered during the year.

ADVISORY SERVICE

222. Officers continued to visit large and small livestock breeders for on-the-spot advice. Lectures were also delivered to Young Farmers.

STAFF

223. The Senior Veterinary Officer, Dr. J. D. Shuja, retired from Service in July, 1969.

224. Dr. R. C. S. Fokeer joined the Division as Veterinary Officer on 21st August, 1969.

REVENUE

225. The various services rendered to the public produced revenue of Rs 374,181.10 compared to Rs 383,366.84 in 1968, the main sources of which were:

	1969
	Rs
Sale of livestock, other than poultry	1,550.70
Sale of poultry, chicks, eggs, etc.	147,357.40
Sale of milk	848.51
Veterinary fees	20,838.25
Quarantine fees	98,392.36
Miscellaneous	1,856.72
Drugs	31.50
Lease on cows	2,004.16
Advance account dogs	1,301.30
TOTAL	374,180.90

Annexure A

RECORD OF MONTHLY EGG PRODUCTION—1969

Month		Bred P. S. 4	P. S. 7	P. S. Cobbs	P. S. L. B. P.	Hybrid	Total
January	...	5,390	7,788	7,033	678	1,884	22,773
February	...	6,699	12,774	6,359	44	2,020	27,896
March	...	8,762	16,260	6,410	44	2,149	33,625
April	...	7,427	10,804	3,638	703	1,778	24,350
May	...	5,214	10,110	2,453	2,030	1,483	21,290
June	...	5,797	12,795	2,198	3,045	703	24,538
July	...	5,911	9,132	2,194	2,194	881	20,312
August	...	6,000	7,296	2,811	1,719	937	18,763
September	...	6,023	7,217	2,972	1,687	925	18,824
October	...	5,979	7,775	3,344	2,382	1,136	20,616
November	...	5,337	5,274	6,967	2,092	1,375	21,045
December	...	3,991	3,247	11,317	1,641	1,556	21,752
TOTAL	...	72,530	110,472	57,696	18,259	16,827	275,784

Annexure B

MONTHLY REPRODUCTIVE PERFORMANCE OF ALL BREEDERS

Month		Number of eggs set		Number fertile	No. of chicks hatched	% fertility	% hatched for fertility	% hatched of No. set
January	...	*5,072 1,520	6,592	5,154	4,106	78.1	79.6	62.2
February	...	—	5,750	4,561	3,793	79.3	83.1	65.9
March	...	—	8,351	6,375	4,505	76.3	70.6	53.9
April	...	—	15,261	11,393	7,766	74.6	68.1	50.8
May	...	—	11,153	8,165	5,661	73.2	69.3	50.7
June	...	—	16,430	13,148	10,087	80.0	76.7	61.4
July	...	—	15,483	12,965	10,362	83.7	79.9	66.9
August	...	—	7,487	6,197	4,770	82.7	76.9	63.7
Scptember	...	†4,711 1,698	6,409	3,747	2,840	79.5	75.7	60.2
October	...	—	5,803	4,544	3,155	78.3	69.4	64.3
November	...	—	5,413	4,443	3,294	82.1	74.1	60.8
December	...	‡7,042 8,208	15,250	6,109	4,291	74.4	70.2	52.3
TOTAL	...	—	119,382	86,801	64,630	78.5	74.5	58.6

* 5,072 eggs were set in December 1968 and chicks hatched in January, 1969.

† % worked for September was calculated on 4,711 eggs set, as the difference 1698 was discarded due to breakdown of incubator,

‡ % worked for December was calculated on 8,208 eggs set, as the difference 7,042 was set in December 1969 and the chicks hatched in January 1970.

The actual number of eggs set for the year is 119,382 eggs less 5,072 eggs, which were set in December, 1968, but the chicks hatched out in 1969 namely 114,310.

Annexure C

MONTHLY PERFORMANCE OF ALL PARENT STOCK, BREEDWISE FOR 1969

Month	Parent Stock Cobb				Parent Stock Ledbreast Pilch			
	Number of eggs set	Number fertile	Number hatched	% fertile	% hatched	Number of eggs set	Number fertile	Number hatched
January	5,693	4,459	3,527	78.4	79.1	899	695	579
February	5,288	4,208	3,540	79.5	84.1	462	353	253
March	6,495	5,115	3,755	78.7	73.4	24	14	8
April	4,554	3,573	2,560	78.4	71.6			
May	2,064	1,619	1,174	78.4	72.5			
June	2,571	1,837	1,510	71.4	82.2	1,794	1,396	1,027
July	1,402	1,151	910	82.1	79.1	2,308	1,964	1,728
August	1,880	1,483	1,125	78.8	75.8	1,674	1,479	1,271
September	2,184	1,590	1,234	72.8	77.6	1,771	1,291	1,122
October	2,576	1,952	1,372	75.7	70.3	1,436	1,230	958
November	2,372	1,830	1,349	77.1	68.3	1,787	1,566	1,231
December	4,306	3,041	2,077	70.6	73.7	2,112	1,748	1,301
TOTAL	41,385	31,858	24,133	76.8	75.6	14,267	11,736	9,498
	Parent Stock 7				Parent Stock 4			
Month	Number of eggs set	Number fertile	Number hatched	% fertile	% hatched	Number of eggs set	Number fertile	Number hatched
January	1,580	1,057	618	66.9	58.4	252	189	124
February	7,734	5,764	3,904	74.5	67.7	2,973	2,056	1,302
March	6,881	5,141	3,520	74.6	68.4	2,208	1,405	967
April	10,619	8,698	6,546	81.9	75.2	1,446	1,217	1,004
May	9,237	7,726	5,978	83.6	77.3	2,536	2,124	1,746
June	3,219	2,644	1,921	82.1	72.6	714	591	453
July						756	619	484
August	783	586	392	74.8	66.9	1,008	776	433
September	378	298	199	78.8	66.8	876	749	515
October	1,047	684	472	65.3	69.0	743	636	441
November								
December								

% fertile % hatched

% fertile % hatched

% fertile % hatched

% fertile % hatched

% fertile % hatched

% fertile % hatched

% fertile % hatched

% fertile % hatched

% fertile % hatched

% fertile % hatched

% fertile % hatched

% fertile % hatched

% fertile % hatched

Annexure D

IMPORT OF LIVESTOCK YEAR 1969

[illegible]

Annexure E

IMPORT OF LIVESTOCK PRODUCTS YEAR 1969

<i>Item</i>	<i>Total (lbs)</i>	
BEEF :		
Frozen	...	438,704½
Salted	...	15,496
Offals	...	300,506½
Sausages	...	4,464½
Preparations	...	166½
GOAT MEAT :		
Frozen	...	24,765
Offals	...	14,468
MUTTON :		
Frozen	...	1,535,712½
Offals	...	19,395½
PORK :		
Frozen	...	21,651
Offals	...	5,206
Pickled	...	26,060
Bacon	...	78,937
Ham	...	23,118
Sausages	...	77,349
Preparations Pies etc.	...	8,873
Rabbits frozen	...	—
Poultry frozen	...	129,850
Turkeys frozen	...	8,435
Ducks frozen	...	1,634
Geese frozen	...	—
Eggs (dozen)	...	—
Cattle Feed	...	92,150
Poultry feed	...	13,932,650
Pig Feed	...	102,920
Meat Meal	...	574,000
Bone Meal	...	157,472
Fish Meal	...	121,200
Dog Feed	...	98,825
Horse Feed	...	56,260
Rabbit Feed	...	84,000

Annexure F

SLAUGHTER HOUSE RETURNS YEAR 1969

<i>Description of Animal</i>	<i>Total</i>	
	<i>No. Slaughtered</i>	<i>Carcasse weight (Kgs)</i>
1. LOCAL CATTLE		
(a) Milch bread		
(i) calves	1,586	151,751
(ii) cows	333	42,287
(iii) bulls	2,135	212,623
(b) Herd cattle	543	63,788
2. IMPORTED CATTLE		
(i) Rodrigues	216	27,700
(ii) Madagascar	11,383	1,687,462
3. SHEEP		
(i) Local	1,350	—
(ii) Imported	1,360	—
4. GOATS		
(i) Local	16,043	—
(ii) Imported	2,696	—
5. PIGS		
(i) Local	8,267	547,529
(ii) Imported	—	—

XIII. The Animal Health Laboratory

226. During the period covered by this report, a total of 1,695 specimens was received at the laboratory and subjected to pathological, bacteriological, parasitological and haematological examinations.

227. These specimens included live animals, animal carcasses, blood samples and blood films, skin scrapings, milk and faeces samples, submitted by Government Centres, Public Breeders, sugar estates and Police Authorities. Details of these examinations are recorded in the appropriate tables at Appendix F.

228. Of the above 1,695 specimens examined, 914 were submitted by Government Centres as shown below:

Palmar Livestock Breeding Station: 39 (including cattle, goats, poultry, blood samples, faeces samples and skin scrapings).

Curepipe Livestock Breeding Station: 41 (including cattle, pigs, rabbits, milk samples from cows).

Artificial Insemination Centre D.V.S., Reduit: 68 (including goats, rabbits, guineapigs, faeces samples from rabbits, goats and dogs).

Roche-Bois Quarantine Station: 30 (including cattle, sheep, goats, blood samples and blood films, faeces samples etc.).

Prison Farm—Richelieu Rehabilitation Centre: 8 (including cattle, sheep, goats, pigs, faeces samples and skin scrapings from goats).

Other Government Centres: 6 (including goats, rabbits and poultry).

Poultry Breeding Centre—Reduit: 655 + 50 Blood Samples (poultry).

Fisheries Division—Ministry of Agriculture: 15 (including 12 oyster samples and 3 water samples).

Police Authorities: 17 (including cattle, dog, goat, poultry).

Public Breeders: 387 (poultry). 83 (including cattle, sheep, goat, stag, pig, dog, rabbit, etc.).

229. In addition, 296 specimens including raw/hide articles, stuffed animals (imported by the public) were submitted by Quarantine Inspectors to the Animal Health Laboratory, where they were sterilised prior to release.

230. The main activities of the Animal Health Laboratory during the year 1969 have been:

(a) Vaccine Production

(b) General Routine Disease Investigation

(c) Animal Disease Surveys

(d) Research work (very limited).

231. Vaccine Production was restricted mainly to:

- (i) Inactivated Newcastle Disease Vaccine; and
- (ii) Fowl Pox Vaccine.

232. In addition to the above vaccines, Live Newcastle Disease Vaccine was imported at the rate of 5,000 doses once every month from l'Institut d'Elevage de Tananarive—Madagascar, but as from November 69 that consignment was doubled owing to the increase in demand for live vaccine.

233. The following represents the number of doses of each of the vaccines produced locally and issued during the whole year 1969:

		<i>Inactivated Newcastle Disease Vaccine</i>	<i>Fowl Pox Vaccine</i>
No. of doses produced locally	...	165,000	172,000
No. of doses issued	...	93,790	145,375
Live Newcastle Disease Vaccine (from Madagascar)			
No. of doses received	...	—	75,000
No. of doses issued	...	—	71,375

234. General Routine Disease Investigations involved post-mortem examinations of animal carcasses (cattle, goat, sheep, stag, dog, pig, rabbit, cat, poultry etc.), bacteriological examinations of milk samples and animal tissues and microscopical examinations of blood samples, faeces samples, skin scrapings etc. The conditions diagnosed in poultry (Poultry Breeding Centre, Reduit and Public Breeders), in general post-mortem examinations, were almost similar to those encountered in the preceding year. Reports on the incidence of some of the following diseases namely Respiratory Disease, Coccidiosis, Unabsorbed yolk, Worm parasitism, Leucosis, Rickets and Vitamin B deficiency, are shown below in Table:

<i>Disease</i>	<i>Poultry Breeding Centre Reduit</i>		<i>Overall %</i>		<i>Public Breeders</i>		<i>Overall %</i>	
	<i>Yr. 68</i>	<i>Yr. 69</i>	<i>Yr. 68</i>	<i>Yr. 69</i>	<i>Yr. 68</i>	<i>Yr. 69</i>	<i>Yr. 68</i>	<i>Yr. 69</i>
Respiratory disease	94	130	18.4	20	168	39	15.7	10
Unabsorbed yolk	94	92	18.4	18	485	30	22	8
Avian Leucosis	70	66	13.7	10	58	57	5.4	13
Complex Coccidiosis	10	36	2	5.5	104	47	9.7	12
Vitamin B deficiency	8	142	1.5	21.6	17	19	1.6	5
Rickets	43	13	8.4	2.0	29	9	2.7	2.4
Worm parasitism	3	12	58	1.8	29	25	2.7	6.5
Total No. of specimens received at the Lab...	511	655	—	—	1,068	387	—	—

235. The major Poultry Diseases "Newcastle Disease" and "Fowl Pox" which are highly contagious diseases and which caused serious losses in poultry some years ago, are now almost completely under control owing to the intensive vaccination programme carried out these recent years. Outbreaks of the disease (5 per cent) occurred only on poultry farms where birds were not vaccinated.

236. Avian Leucosis Complex still remains one of the most puzzling problems facing the poultry industry here and throughout the world, and no preventive treatment has yet been discovered.

237. This disease exists under several forms, three of which are of common occurrence in Mauritius and probably have existed there for many years:

- (1) Visceral Lymphomatosis or visceral form. This form affects the liver, spleen, kidney etc.
- (2) Neural Lymphomatosis synonym Fowl Paralysis, affecting the peripheral nerves (wing, leg, neck).
- (3) Ocular Lymphomatosis or Pearly eye.

238. In general there is no known therapeutic measures. Birds showing clinical evidence of the Avian Leucosis Complex, including True Ocular Lymphomatosis, should be consistently culled.

239. From experience and observations at the Laboratory, it has been noted that the following breeds of Poultry are very susceptible to Avian Leucosis Complex: Hybrid 7, Hybrid 4, 404 Parent Stock 7.

ANIMAL DISEASE SURVEYS

240. Those involved examinations of materials collected in the field by Veterinary Officers, Stock Inspectors and Laboratory Staff from diseased and healthy animals (cattle, goats, sheep etc.) and these specimens include blood samples, blood films, skin scrapings, milk samples, faeces samples etc. Seroagglutination tests were also conducted on 137 blood samples of poultry received from the Poultry Breeding Centre and Public breeders in the diagnosis of Chronic Respiratory Disease.

241. Owing to an extreme shortage of staff during that year, animal disease surveys were not carried out to their full extent.

RESEARCH WORK

242. A similar programme of investigation on contaminated oysters was carried out this year so as to ascertain their degree of contamination and to isolate any pathogenic organisms present. 12 samples of oysters and 3 samples of water were submitted by the Fisheries Division to the Animal Health Laboratory for bacteriological examinations.

243. Bigger's technique (Ref. Handbook of Practical Bacteriology—by Mackie and Mac Cartney) was adopted in the Bacteriological examination of these oysters, and the following organisms were isolated from cultures:

- E. coli* (a Gram-negative coliform bacteria with fermentative properties).
- B. alcaligenes* faecalis (a Gram-negative aerobic coliform bacteria, with non-fermentative properties).
- B. subtilis* (a Gram-positive aerobic sporing bacillus—usually ferments sugars with no gas production).

244. Contaminated oysters after a 5 day-treatment in sea water were found to be free from the above organisms.

245. Bacteriological examination on 3 samples of water also revealed the presence of coliform organisms and aerobic sporing bacilli (*B. Subtilis*).

246. With reference to diseases in animals due to yeasts and fungi, 6 cases of moniliasis (sour crop) in poultry, usually due to *Candida albicans* were encountered in analysis.

247. One case of *Streptotrichosis* in a goat at Palmar Livestock Breeding Station was recorded too. This mycotic condition was mainly due to a *Dermatophilus spp.* Cases of *Streptotrichosis* associated with *Dermatophilus congolense* have already been diagnosed in bulls at Pailles and Black River.

248. There has been a high incidence of Avitaminosis in chicks at the Poultry Breeding Centre, and even among Public Breeders cases have been diagnosed in chicks. This may be attributed to diets deficient in vitamins.

249. Experiments carried out in the laboratory have proved that these conditions were associated with Vitamin B deficiency. Chicks submitted to the laboratory, and showing leg weakness, curly toes etc. were each injected intramuscularly with 1 c.c. of Vitamin B. complex solution.

250. Rapid recovery was noted after 1 or 2 days and the chicks could then walk and feed normally. However, in cases of longstanding where the chicks are severely affected, administration of Vitamin B. supplement will not cure this condition.

XIV. Land Settlement

251. In 1969, the Land Settlement Committee held two meetings during which cases of transfer of tenancies, revision of rents on Land Settlements and other matters concerning settlements were considered. The question of reduction of rental has been forwarded to the Ministry of Finance for final decision. The Special Committee which looks after the selection of tenants met on two occasions, during which selections were made for lease of lands at Ferney, Mont Choisy, Case Noyale, Pointe du Diable, Poudre d'Or Village, Elysée, Trou d'Eau Douce, Pointe-aux-Sables, Grand River North West, Palmar Haute Rive, Belle Mare, Quatre Soeurs, Petit Sable, Argy, Deux Frères, Papavert, Roches Noires.

252. Rent collection has improved, but it is still unsatisfactory and many tenants are in arrears.

253. At Petit Sable, the road through a plot of 10 arpents is still under construction.

254. The 27 A 50 of lands at Papavert have been allotted to the squatters on the land. They are cultivating vegetables and foodcrops and are paying their rents regularly.

255. At Elysée, Moona and Plaisance foodcrops and vegetables are being planted. However, the tenants at Moona have difficulty to obtain irrigation water and are not able to cultivate their holdings satisfactorily.

256. The additional eleven arpents of land distributed to cultivators at Terre Rouge have not been fully exploited owing to lack of irrigation water.

XV. Extension Services

STAFF MOVEMENT

257. Mr. T. M. Narain assumed duty as Ag. Senior Agricultural Officer of the Extension Services in April 1969 following the transfer of Mr. L. Moorlee to General Services. Mr. L. R. Brunet, Agronomist was transferred to Tea Division in July. An Information Section was created in September under Mr. C. Ramlochun. Unfortunately the officer left in December. In the Statistics Section Mr. D. Zmanay was transferred back to Central Statistics Office and Mr. Khadaroo replaced him since 1st December 1969.

258. Mr. F. S. Goddard was the F.A.O. Extension Adviser. Mr. R. Birgeresson, Associate Youth Expert, arrived on 13th October. Miss J. Wittenberg, Home Economist, assumed duty on 8th September.

259. At the beginning of the year there were five Agricultural Officers. In June one Agricultural Officer left to assume duty in the Private Sector. In July one Agricultural Officer was transferred to General Services. In September another Agricultural Officer was transferred to Tea Division. Two Assistant Agricultural Officers were appointed Agricultural Officers on 14th August and 1st September so that the year ended with four Agricultural Officers in service.

260. In the Assistant Agricultural Officer grade there were 4 at the beginning of the year. In June six additional Assistant Agricultural Officers were recruited fresh from College. After two weeks training in general Extension principles one was transferred to the Tea Division. With two Assistant Agricultural Officers promoted Agricultural Officers, the Service ended the year with 7 Assistant Agricultural Officers out of a staff of 12 Assistant Agricultural Officers.

261. Of the 10 Field Assistants two left during the course of the year for further studies abroad.

262. Contacts with farmers are made through:

- (a) Visits to plantations
- (b) Demonstration Work
- (c) Evening Meetings
- (d) Mass Media
- (e) Publications

VISITS TO PLANTATIONS

263. Over 9,000 individual farm visits were made by officers of the Extension Service. Advice was tendered on all aspects of Agriculture including sugarcane, fruit trees, livestock rearing, poultry keeping and vegetables of all sorts. Special emphasis was laid on fertiliser use in sugarcane and timely disease and pest control in fruit trees and vegetables. Work in the field also involved to a large extent advice in connection with the replacement of prohibited sugarcane varieties by recommended ones. There was also an intensive campaign launched in August—September to increase cultivation of rice.

FIELD DEMONSTRATION

264. Demonstrations on the correct use of fertilisers on sugarcane were continued and 18 such field demonstrations established in previous years were harvested and results showed marked differences in favour of the use of complete fertilisers. Field visits were organised to allow planters to derive maximum benefit from these demonstrations. Field visits on vegetable growing at La Chaumière and rice growing at Nouvelle Découverte were also arranged for the benefit of farmers. Young farmers also were conducted round Demonstration Centres and other places for field demonstrations on proper techniques of cultivation and livestock and poultry raising. Two demonstrations on vegetable growing were also given each to Queen Elizabeth College, Agricultural Club and Peace Farm (created by Dr. Algen Jaganathan.)

EVENING MEETING

265. 98 evening meetings were held during the course of the year. The subjects discoursed upon were sugarcane (56), Rice (22), onions, potatoes, ginger (20). At two of the meetings on rice held at Roches Noires and Clémencia, the Minister of Agriculture and Natural Resources, the Hon. Mr. S. Boolell, presided. The topics included all aspects of sugarcane growing e.g. choice of varieties, use of healthy planting material from Pointe aux Sables Nursery and use of complete fertilisers etc. Rice cultivation was also much discussed with respect to the varieties available and the role it can play in the diversification of agriculture and utilisation of marshy areas.

MASS MEDIA—TELEVISION

266. A weekly fifteen minute Television show in Bhojpuri was started in September and twelve programmes were presented. The topics dealt with were mainly cultivation of rice but they also included cultivation of onions, sugarcane and the control of Rhinoceros beetle on coconut palms.

PUBLICATIONS

267. The Farming News was issued at 2 month intervals. A hand out on Package of Practices for Rice Cultivation was prepared with the help of Dr. M. S. Chaudhry, Rice Agronomist from India, and the Entomologist.

268. A series of lectures was held on Saturday mornings from 19th April to 21st June. The lectures which were followed by practical field work were designed to provide basic training in agriculture to leaders of Rural Youth Clubs and Young Farmers and were held simultaneously at three Demonstration Centres viz Centre de Flacq, Rivière des Anguilles and Arsenal. The attendance at all three Centres combined was 98.

PROPAGATION AND DISTRIBUTION OF CANE VARIETIES

269. With the imminent date limit for eradication of certain susceptible cane varieties to gummosis, the Service participated in the effort to promote the cultivation of gummosis resistant varieties of cane. The various demands for cane planting material were channelled to the Pointe aux Sables Sugarcane Nursery. The Demonstration Centres had also a few perches devoted to planting M. 377/56, M. 13/56 and M. 13/53. Canes from the plots were all distributed in small amounts to small growers. Transport was provided by the Service in many instances for taking cane from Pointe aux Sables to the fields of farmers.

PESTS AND DISEASES

270. The season until August was normal and disease incidence was consequently normal. From August until November it was unusually dry and red spider mites attacks on pomme d'amour and other vegetables were severe. Pod borer attacks in beans and peas were also very heavy. Bacterial Wilt incidence on potatoes was widespread.

271. A case of nematode attack on ginger was discovered at Crève Coeur where about 40 per cent of the field was affected. Blast and mildew were specially prevalent on onions. Blight on potatoes however was not too serious a problem and M. 45 weekly sprays controlled it effectively. Potato growers however complained of the quality of seed offered to them in the beginning of the season when much rotting occurred in the field.

272. The Rhinoceros beetle has gained more ground. Many more trees all over Mauritius have been attacked. Villages such as Rivière des Créoles, Grand Bel Air and Mare d'Albert which were free from attack of the beetle have become infested. Ile aux Benitiers which so far had been free of the beetle had finally by the end of the year been infested.

273. An attack of '*Allisonotum Piceum*' was noticed at le Hochet in a cane field planted under M. 377/56 and M. 147/44. The matter was referred to the Mauritius Sugar Industry Research Institute, which recommended the application of Dieldrin as a control measure.

274. No marked cases of leaf scald or Fusarium wilt attacks on the susceptible variety of sugarcane (M. 202/46) have been reported. The dry year has not been favourable to the gumming disease and very few systemic infections were observed on the susceptible varieties.

FOODCROPS GROWING IN CANE INTERROWS

275. The interest manifested in increased foodcrop production was maintained and an intensified use was made of interlines in virgin and ratoon canes. Both small holders and sugar estates have participated in this project.

PERMANENT DISTRICT DEMONSTRATION CENTRES

276. A substantial acreage of the Demonstration Plots was devoted to the cultivation of the most recently released varieties of sugarcane, bananas, pineapple, manioc, sweet potatoes, fodder grasses and improved strains of acacia to meet the demands of planters for planting materials. Varietal demonstrations were put up for acacia, groundnut, dholl Kessari and emberique. Members from the Young Farmers Clubs, Rural Youth Clubs and the public were conducted round the Demonstration Centres. The Demonstration Centres are kept open on three afternoons in a week to receive requests for advice from planters. Their requirements for plants and seeds are received as well and the Extension Officer helps in bringing the plants and seeds to the Centre. Rice seeds were sold at the Centres during the planting seasons. Local goat breeders brought their does of local breed to the Centres for servicing with Anglo Nubian Bucks so as to improve their stock.

ARSENAL DEMONSTRATION CENTRE

277. About 2,000 kgs of foodstuff were produced. Plants of *fruit de cythere*, *mango*, *bibasse*, *atte* were produced on the station. Two young Anglo Nubian bucks were sold: one to each of two local goat breeders for improving their stock and those of their neighbours. One sterile cow was sold and replaced by a productive one. Total sales during the year amounted to Rs 1,944.22.

MAPOU DEMONSTRATION CENTRE

278. About 1,800 kgs of foodstuff were produced in spite of the long and severe drought which prevailed from August to November. Three Anglo Nubian bucks and two does were sold one each to 5 goat breeders for improving their stock. Total sales during the year amounted to Rs 2,112.98.

VACOAS DEMONSTRATION PLOT

279. Intensive cultivation of vegetables and foodcrops was continued. The Ramakrishna Mission who had hitherto been providing the labour and had shown keen interest in the cultivation of the plot felt that they could no longer maintain the interest and consequently the plot has been returned back to the owners and its cultivation discontinued. 16,550 kgs of foodcrops were produced and the sales amounted to Rs 5,200.

RIVIÈRE DES ANGUILLES DEMONSTRATION CENTRE

280. 1,840 kgs of foodstuff were produced. 1,160 canes of varieties M. 377/56, M. 13/56, M. 13/53 were sold to small planters. 17.5 tons of sugarcane which could not be distributed to planters were sent for milling. 77 plants and 1,624 eggs were produced and sold at the Station. Three Anglo Nubian bucks were sold one each to 3 goat breeders of the district for improving their stock, and that of their neighbours. Total sales during the year amounted to Rs 2,632.92.

CENTRE DE FLACQ DEMONSTRATION CENTRE

281. 1,550 kgs of foodstuff, 110 plants, 564 eggs were produced and sold at the Station. 3,260 canes of varieties M. 377/56 and M. 13/56 were distributed to some 30 small sugarcane planters and 4,685 tons which could not be distributed were sent for milling. One Anglo Nubian buck was sold to a local goat breeder for improving his stock. One ten year old cow was sold and replaced by a more productive one. Total sales for the year amounted to Rs 2,275.15.

PLAISANCE DEMONSTRATION CENTRE

282. 600 kgs of foodstuff, 1,795 eggs and 153 fruit trees were produced and sold at the Station. 6,000 canes of varieties M. 377/56, M. 13/56 were sold to small sugarcane planters and 6.3 tons were sent for milling. Two Anglo Nubian bucks were sold to local breeders for improving their stock. Total sales for the year amounted to Rs 2,280.88.

ASSISTANCE TO SMALL GROWERS

283. Samples of soil for determination of pH and nutrients status were taken from small planters' fields that had been bulldozed and due for replanting to sugarcane. The analysis was then interpreted for them by officers of the Service. Thus the farmers were more accurately supplied with the information about the correct amount of fertilisers to be used in their respective fields.

284. The drive for more local rice production was intensified. During the year 475 arpents were planted yielding some 810 tons of paddy compared to 75 arpents planted in the previous year. A hand out on Package of Practices for rice cultivation was prepared for various rice growers. Rice growers of Mare d'Australia and Mare Choisy were helped in forming an Association.

285. The Members of Cooperatives and local Government (District Councils) were contacted for help in enlarging and improving the main road leading into Mare d'Australia. The Minister of Information, Mr. Jeetah, personally showed keen interest in Mare d'Australia and did the first spade work on the road improvement project in March 1969. Some 60 arpents of river banks and drains were sprayed with chemical weed killers so as to improve the flow of water which was dangerously being impeded by water weeds. These operations have greatly helped in increasing the area put under rice at Mare d'Australia.

286. School vegetable gardens tend to disappear. Schools however requested help in planting their yards to fruit trees and ornamentals. Help and advice were given to such schools and planting demonstration made.

287. The Poor Institutions received the regular visits of the Extension Service Officers who gave advice on general farming matters and delivered various vegetable seeds to them.

LIAISON WITH THE MAURITIUS SUGAR INDUSTRY RESEARCH INSTITUTE

288. Close contact was maintained throughout the year. Topics on the cultivation of sugarcane for inclusion in Farming News were frequently discussed with the staff of the Mauritius Sugar Industry Research Institute.

289. The following talks were delivered at the Institute and attended by all officers of the Extension Service:

<i>Date</i>	<i>Subject</i>
18. 3.69 ...	Revue des travaux du M.S.I.R.I. en 1968
22. 4.69 ...	(a) La place qu'occupe le facteur transport dans le coût de la production de la canne (b) Epandage rationnel des fertilisants avec démonstration
24. 6.69 ...	(a) Résultats des expériences sur les arachides (b) Conseils sur la culture de la pomme de terre
22. 7.69 ...	Résultats des expériences à Palmyre sur l'évapo-transpiration
19. 8.69 ...	Résultats des expériences avec des nouveaux herbicides
23. 9.69 ...	La carte agroclimatique
21.10.69 ...	L'emploi de boutures saines à la plantation
18.11.69 ...	Losses caused by the sugar cane scale insect and methods of control
9.12.69 ...	Les variétés de canne à sucre
16.12.69 ...	Résultats des expériences sur la pomme de terre.

MISCELLANEOUS ACTIVITIES

290. The Campaign of Growing More Fruit Trees has been extended to practically all villages. All requests are being entertained and plants provided.

291. A Kitchen Garden Competition was organised by the Public Assistance Officer at Goodlands and the Agricultural Officer acted as judge.

292. Various meetings were held at Fond du Sac by the Extension Officer so as to explain the Northern Irrigation Pilot Project to farmers of the area and creating the climate for land consolidation and the benefits it would provide them.

293. In December, 29 farmers from Réunion island were conducted round Pamplemousses and Rivière du Rempart districts so as to meet their Mauritian counterparts and have discussions with them. The Peace Farm, Young Farmers Clubs and the Ecoles Ménagères were periodically helped and various lectures delivered on agricultural topics.

294. Under the FAO/UNICEF/WHO Agricultural Extension and Home Economics Programme which was launched in 1966 arrived Mr. R. Birgesson in October and Miss J. Wittenberg in September 1969. Refresher courses for the benefit of Social Welfare Officers were organised and a survey is being made into the organisation of Agricultural Youth Clubs. To assist in the latter project the F.A.O. Rural Youth Expert, Mr. F. Hansen, paid a week's visit in October.

295. Silage making has not been a popular scheme and it has been abandoned. The silo pits at the Demonstration Centres had not been filled. A trench silo was put up by La Chaumière estate and maize ensiled. Help and advice was given and a chaff cutter lent to them. Later samples of silage were taken for analysis. The silage making was a success.

296. Some 1,042 arpents were put to potato cultivation and the production was 5,760 tons. The yield has been very low because of the bad quality of seed at the beginning of the season and the drought which prevailed from August to November. Blight incidence was low. Tuber Moth attacks were also kept under control.

297. Once again as in previous years except 1968 two peaks of production have been registered, one in August and the other in November.

298. Various surveys were conducted during the year, including:

1. Assessment of Crown Lands for Rental Value and suitability for agricultural development.
2. Survey of virgin plantations to determine rate of replantation and trends in the replacement of outdated varieties.
3. Assessment of damage done to crops as a result of indiscriminate use of herbicides.
4. Survey of fields in connection with their suitability for rice growing.
5. Investigation of fodder problems.
6. Recording of statistical data for foodcrops under harvest.
7. Assessment of potato and onion acreages grown and production for the Agricultural Marketing Board.
8. Weekly recording of market prices for vegetables.
9. Estimation of annual foodcrop and fruit harvest.

XVI. Foodcrops

299. The following tables were prepared from the data collected by the Extension Service:—

AREA HARVESTED (ARPENTS)

<i>Year</i>	<i>Maize</i>	<i>Manioc</i>	<i>Avonilles</i>	<i>Sweet Potatoes</i>	<i>Groundnuts</i>	<i>Irish Potatoes</i>	<i>Beans & Peas</i>	<i>Pine Apples</i>	<i>Brijal</i>	<i>Tomatoes</i>	<i>Ginger</i>	<i>Creepers</i>	<i>Mixed Vegetables</i>	<i>Bananas</i>	<i>Rice</i>	<i>Total</i>
1968	...	429	32	88	514	1,313	601	116	315	1,904	110	1,180	1,540	1,038	24	9,298
1969	...	581	33	90	784	1,091	623	124	418	1,876	165	998	1,724	1,127	476	10,148
ESTIMATED AVERAGE YIELD KGS/ARPENT																
1968	...	876	7,473	5,188	6,131	7,296	1,085	5,755	5,951	4,611	7,982	6,782	4,692	10,369	1,593	—
1969	...	795	7,258	5,205	5,801	5,279	983	5,413	6,286	4,566	6,992	7,084	4,476	10,176	1,708	—
ESTIMATED TOTAL COMMERCIAL PRODUCTION (METRIC TONS)																
1968	...	376	241	458	268	9,578	652	666	1,874	8,780	882	8,006	7,227	10,763	118	50,521
1969	...	462	239	468	219	5,761	613	670	2,628	8,566	1,152	7,071	7,715	11,468	813	48,637

* Green Weight.

The areas shown above were effective acreage harvested and include the aggregate acreages of different crops grown on the same land in one year, as well as foodcrops interplanted with sugar-cane.

XVII. Experiment Stations

CUREPIPE EXPERIMENT STATION

Development

300. (a) Land reclamation work continued and three more arpents of scrub were cleared and planted to fodder grasses.

(b) New access roads 12 feet wide were made over 1,000 feet and that improved access to several fields.

(c) Drains have been improved and three rows of pine trees have been planted on the windward side of the station.

FODDER

301. With the setting up of the FAO/UNDP project on Meat and Milk all work with fodder grasses is now under the project, and no trials were carried out at the station during the year.

302. The Station, however, continued to bear the responsibility for supplying the Curepipe Livestock Breeding Station with fodder. Thus 851 tons were produced on the station and in addition 276 tons of fresh cane tops and 87 tons of cane top silage were supplied.

ORCHARD CROPS

Citrus

303. The 1968 planted seedling mandarin orchard was maintained, Three varieties Djeroek Garoet, D. Keproek Poenten and local produced over 500 fruits per tree at their best.

304. The grafted variety Clementine also fruited but was erratic varying from 208 to 27 fruits per tree.

Grapefruit

305. The grafter variety Juddoo showed its great potential by fruiting regularly once again this year.

306. The Sweet orange variety *Waterkloof* fruited and the seeds used for producing stocks.

Guava

307. In spite of the long spell of drought towards the end of the year the plants flowered and fruited. The best yields obtained were between 80 and 90 kilos of fruit per tree.

Persimon

308. The plants fruited well but the fruits did not ripen properly and were unpalatable.

Rice

309. Seasonal and variety trials by the Agronomist were carried out on the station with the object of finding suitable varieties and planting season for the cold humid regions.

Colocasia sp.

310. The fertiliser trial with NPK on the carri variety was repeated i.e. farmyard manure at 10 tons per arpent at the time of planting and N, P_2O_3 and K_2O at 0, 30 and 60 kgs per arpent given in the form of Sulphate of ammonia, triple superphosphate and sulphate of potash at planting. The yields obtained were as follows calculated to tons per acre.

			N_0			N_1			N_2			<i>Total</i>	<i>Means</i> ^s
			P_0	P_1	P_2	P_0	P_1	P_2	P_0	P_1	P_2		
K ₀	...		2.90	1.82	2.07	1.82	2.24	2.32	2.57	2.07	2.90	20.71	2.30
K ₁	...		1.41	2.66	2.32	2.16	2.07	2.32	2.07	2.41	3.15	20.57	2.29
K ₂	...		1.82	1.99	4.31	2.49	2.07	3.24	2.74	1.82	2.32	22.80	2.53
Total	...		6.13	6.47	8.70	6.47	6.38	7.88	7.38	6.30	8.37	64.08	—
Means	...		2.04	2.16	2.90	2.16	2.13	26.3	2.46	2.10	2.76	—	2.37

			N_0	N_1	N_2	<i>Total</i>	<i>Means</i>
P ₀	...		6.13	6.47	7.38	19.98	2.22
P ₁	...		6.47	6.38	6.30	19.15	2.13
P ₂	...		8.70	7.88	8.37	24.95	2.77
Total	...		21.30	20.73	22.05	64.08	—
Means	...		2.37	2.30	2.45	—	2.37

L.S.D. @ 5% : ± 0.490 T/A

L.S.D. at 1% : ± 0.678 T/A

Yield of control : 2.90 T/Acre

311. The spacing trial with *Colocasia esculenta* var. Carri was also repeated this year. It was planted on 17.4.68 and harvested on 2.5.69. The spacings were $2\frac{1}{2}$ ft. $\times$ 1 ft., 3 ft $\times$ 1 ft. and 2 ft $\times$ 1 ft. A uniform fertilizer treatment of farmyard manure 10 tons per acre, sulphate of ammonia 150 lbs per acre, triple superphosphate 100 lbs per acre and sulphate of potash 100 lbs per acre, was applied.

312. The results obtained were as follows:

Spacings	Mean Yield in tons (fresh wt.) per acre
(a) $2' \times 1'$	3.88
(b) $2\frac{1}{2}' \times 1'$	3.68
(c) $3' \times 1'$	2.67

L.S.D. @ 5% ± 1.52 Tons/acre

Conclusion

Again the results showed that there was particularly no difference in yields between treatments (a) and (b) and both gave significantly higher yields than treatment (c).

Sweet Potatoes

313. A plantation of 6 varieties of sweet potatoes was made on 5.12.68. The varieties were Patate Raisin, Violette, Mirbelle, Patate Rouge, Pelican Processor and Joes. The planting material consisted of sweet potato vines 1 ft. in length which were planted on mounds 3 ft. apart and 1 ft. distant on the mound with 2 vines per hole. The plots were randomised and a uniform treatment of farmyard manure at 5 tons, sulphate of ammonia at 200 lbs, triple superphosphate at 100 lbs and sulphate of potash at 100 lbs per acre was applied at time of planting. Harvest was carried out on 9th July, 1969 and the yields of roots were as follows:

<i>Variety</i>		<i>Yield Tons (fresh wt. of roots) per acre</i>
Patate Rouge		2.09
Patate Raisin		1.85
Mirbelle		1.76
Pelican Processor		1.74
Joes		1.47
Violette		1.42

L.S.D. @ 5% = $\pm$ 1.66 ton/acre

1% = $\pm$ 2.29 ton/acre

314. A total of about 5 acres was planted under Pumpkin, Calabash, Luffa, Cucumber and Squash for the purpose of seed production.

315. Various vegetables such as Cabbages, Cauliflower, Lettuce, Beans, Peas and various Creepers were also grown as crop rotation and the produce sold to the public.

316. The total revenue collected during the year from the sale of the various produce of the station under the control of the Field Services Division amounted to Rs 6,925.92. The items of sale were as follows:

	<i>Rs</i>
Miscellaneous vegetables	... 1,222.91
Various fruits	... 5,411.77
Duck eggs	... 76.44
Coconut seedlings	... 214.80
TOTAL	... 6,925.92

LIVESTOCK

317. Ducks and geese rearing continued in association with fresh water fish ponds. In all 345 duck eggs were sold to the public during the year. The total number of birds at the end of 1969 was 16 ducks, 12 ducklings, 7 geese and 10 goslings.

318. The Black Swans received in 1958 from the Australian Government have still not laid any egg.

MISCELLANEOUS

319. The total rainfall during 1969 amounted to 109.4 inches. The period from the months of September to end of November was exceptionally dry—a total of only 3.2 inches was registered at the Station.

320. A total of 887 tons of farmyard manure was supplied to the various stations of the Ministry of Agriculture and Natural Resources as well as other Ministries and Departments.

PLAISANCE EXPERIMENT STATION

ORCHARD SECTION

Citrus

321. The fruits formed in 1968 were harvested during the period from April to July, 1969. Quite good crops were obtained and the three best yielding plants of the various varieties are as tabulated below:

<i>Variety</i>	<i>Tree No.</i>	<i>Total No. of fruits</i>	<i>Total wt. of fruits kgs.</i>	<i>Average wt. of fruits kg.</i>
Pineapple	... 10	205	48.5	.236
do	... 4	144	38.7	.188
do	... 5	175	38.0	.187
Washington Navel	12	874	140.0	.160
do	... 10	624	92.3	.148
do	... 11	336	87.8	.261
Valencia	... 3	372	52.6	.141
do	... 6	271	50.6	.136
do	... 5	398	42.9	.108
Parson Brown	... 7	730	106.9	.147
do ...	... 9	436	92.5	.212
do ...	... 13	687	88.0	.128

Ginger

322. A seasonal, trial started in September, 1968, and continued at monthly intervals up to February, 1969, was carried out at the station. A uniform fertilizer treatment with the normal dose was given at planting time and the spacing of holes was uniform at 2 feet between rows and 1 foot in the row, and the size of the plot planted each time was 1,020 sq. ft.

323. The plantation suffered from drought and the results were as follows:

<i>Date planted</i>	<i>Date harvested</i>	<i>Calculated yield tons/acre</i>
30. 9.68	8.10.69	1.740
15.10.68	8.10.69	1.525
15.11.68	9.10.69	2.915
16.12.68	13.10.69	2.250
18. 1.69	14.10.69	1.120
18. 1.69	15.10.69	.779

324. Analysis of ginger rhizomes produced at the station were carried out by the Chemist of the Ministry. The ginger plantations were made at different dates and the results of analysis obtained are tabulated below:

<i>Date of Plantation</i>	<i>Date of Harvest</i>	<i>Treatment of Rhizomes</i>	<i>% water</i>	<i>%DM Fibre</i>	<i>%DM Ash</i>	<i>Remarks</i>
(a) 15.12.67	6. 8.69	All the samples were scraped, sliced and dried for two days.	74.5	4.2	3.6	2nd year rhizomes
	"		74.0	4.2	3.4	1st year rhizomes
2 yr. old Crop	21. 8.69		85.7	4.9	8.8	2nd year rhizomes
	"		78.7	7.9	4.7	1st year rhizomes
	3. 9.69		85.8	8.0	6.9	2nd year rhizomes
	"		75.0	4.6	4.7	1st year rhizomes
(b) 30. 9.68	6. 8.69		75.0	4.2	4.4	
"	21. 8.69		75.0	5.2	5.9	
"	3. 9.69		75.5	4.4	5.0	
"	30. 9.69		75.5	5.4	4.5	
(c) 10. 2.69	30. 9.69		75.2	5.1	5.0	
14. 3.69	"		72.8	4.1	4.8	
18. 4.69	"		73.9	5.2	4.4	
15.10.68	"		75.7	4.7	4.7	
15.12.68	"		74.0	3.9	4.8	
27.12.68	"		77.8	5.5	4.7	

325. The results of the above analysis have shown that at the time of harvest of the crop the rhizomes of different ages have little variations in their water, fibre and ash content.

Coconut

326. Coconut trees of Malayan Dwarf varieties planted in May, 1963, and variety Pemba planted in January, 1962, produced a good number of nuts in 1969. The average yield figures for the five best plants were:

		<i>Nuts</i>
Malayan Dwarf	Green	... 89
"	Yellow	... 67
"	Red	... 71
Pemba	...	... 57

327. The following number of ripe coconuts for seed were sent to Barkly Experiment Station:

<i>Variety</i>	<i>No. of Nuts</i>
Malayan dwarf green	... 1,454
Malayan dwarf yellow	... 1,433
Malayan dwarf red	... 1,613
Malayan Dwarf Pemba	... 1,407

Litchi

328. In spite of the drought nearly all the 25 litchi layers (selection No. 8 of Barkly) planted in March 1963 flowered and produced fruits. A selection has been made of the trees giving the best yields of fruits with good taste for the production of layers.

Pineapple

329. The fertilizer factorial trial with single replication with variety "Queen Victoria" planted on 29.6.68, produced fruits that were harvested during the period from November 1969 to January, 1970. The fertilizers were applied at the following rates per acre:

Nitrogen in the form of Sulphate of Amonia 0,100 and 200 lbs
 P_2O_5 as triple super phosphate : 0,150,300 lbs
 K_2O as sulphate of Potash 0,150,300 lbs respectively.

The following results were obtained :

	N_0			N_1			N_2			Total	Means	
	P_0	P_1	P_2	P_0	P_1	P_2	P_0	P_1	P_2			
K_0	...	7.44	5.89	8.58	7.07	5.91	7.10	2.51	7.81	4.89	57.20	6.35
K_1	...	4.46	8.16	7.31	6.19	2.55	7.97	6.74	5.00	4.20	52.58	5.84
K_2	...	10.84	5.71	6.85	3.60	6.61	8.29	7.70	4.60	8.28	62.48	6.94
Total	...	22.74	19.76	22.74	16.86	15.07	23.36	16.95	17.41	17.37	172.26	—
Means	...	7.58	6.59	7.58	5.62	5.02	7.79	5.65	5.80	5.79	—	6.38

		N_0	N_1	N_2	Total	Means
P_0	...	22.74	16.86	16.95	56.55	6.28
P_1	...	19.76	15.07	17.41	52.24	5.80
P_2	...	22.74	23.36	17.37	63.47	7.05
Total	...	65.24	55.29	51.73	172.26	—
Means	...	7.25	6.14	5.75	—	6.38

		N_0	N_1	N_2	<i>Total</i>	<i>Means</i>
P_0	...	22.74	16.86	16.95	56.55	6.28
P_1	...	19.76	15.07	17.41	52.24	5.80
P_2	...	22.74	23.36	17.37	63.47	7.05
Total	...	65.24	55.29	51.73	172.26	—
Means	...	7.25	6.14	5.75	—	6.38

L.S.D. at 5% ± 1.227 T/A

L.S.D. at 1% = 1.697

Yield of control = 7.44 T/A

Mangoes

330. All the trees were circle—weeded and given the necessary fertilizers. Dieldrin was used for the control of the mango borer *Botocera rufo-maculata*. Several trees had flowered and produced some fruits, but due to drought most of the flowers and fruits dropped down.

Miscellaneous Fruit Trees

331. Custard apple, bullocks heart and avocado trees planted in May 1966 produced some fruits which were palatable though the number was not quite as expected due to adverse weather conditions.

Seed Production

332. Plantation was also made for production of seeds for sale in our Nurseries. The acreage and the quantity of selected fruits for seed produced during the year are as follows:

Crop	Acreage	Amount of seeds
Eggplant Rosita—var. ...	0.042	200 grm. of clean seeds
„ —var. Purple long ...	0.017	50 „
„ Purple Round ...	0.016	58 „
„ Mustakie ...	0.016	90 „
Lettuce var. Mignonette ...	0.39	10.6 kg. of clean seeds
„ Sucrine ...	0.019	3.4 „
„ Merveille des quatre saisons	0.016	2.7 „
„ Webb's Wonderful ...	0.062	2.0 „
Margoze de Chine ...	0.005	1.33 „
Peas var. Green Feast ...	0.48	40.8 „
„ Local ...	0.95	439.0 „
Pomme d'amour ...	0.086	38.2 „
Tomato var. Marglobe ...	0.22	6,422 fruits
„ Oxheart ...	0.016	155 „
„ Supreme ...	0.005	108 „

333. All the above-mentioned fruits and seeds were sent to Barkly Experiment Station for processing before sale.

334. In addition to the above, the following seeds were also produced for sale to the public.

<i>Crop</i>	<i>Amount of seeds</i>
Acacia var. Guatemala ...	7.2 kgs.
„ El. Salvador ...	3.8 „
„ Hawai ...	3.4 „
„ Bald Hills ...	3.8 „
Butter Bean ...	9.5 „
Groundnut var Cabri ...	550 „ of sundried nuts

335. The following fruits were also produced and sold to the public at the Station:

Pineapple ...	2,813 fruits
Coconut ...	1,040 „
Coconut seedlings ...	127 units
Oranges ...	22,227 fruits
Mandarines...	1,001 „
Grapefruit ...	444 „
Rough Lemon ...	363 „

CENTRAL EXPERIMENT STATION

Citrus

336. Maintenance of the different kinds of citrus in the 2½ acre grove was carried out. Operations performed were the timely application of fertilizer according to the age of the plants and spraying with fungicides and insecticides, pruning of dead and sickly twigs followed by application of tree wound dressing, carving out of decayed part from trunk of sickly plants, painting out of decayed part from trunk of sickly plants, painting the cavities thus produced with a solution of a copper compound and filling them with cement; the opening and loosening of the soil by shallow cultivation, irrigation both surface and overhead. To keep down weeds, particularly *Cyonodon dactylon* (*chiendent*) and to enhance the vegetable matter content, cover crops of legumes of *Desmodium intortum* in the inter-row of Semineole and Mineole tangelos; *Siratroa* (*Faseolus atropurpureus*) in inter-rows of grapefruits; *Glycine javanica* and *vigna marina* in inter-rows of Navel oranges have been planted.

337. The 14 year old Mandarin seedlings of the introduced varieties from South Africa have grown up to about 10' high and developed a canopy of twelve feet in diameter. Counting of fruits was made five months after fruits set. Twenty-five of variety Empress produced a total of 9,970 fruits. Thirty three plants of variety Fagan produced 7,158 fruits, thirteen plants of *Djeroek Keproek Poenten* produced 8,004 fruits, nineteen plants of var. *Djeroek Keproek Garoet* produced 3,655 fruits.

338. Forty four plants of 4 year old local mandarines budded on Florida Rough Lemon, planted among the mandarine plants of the imported seedlings from South Africa, to replace missing plants, produced 11,945 fruits.

339. Two rows of Marsh grapefruit crown grafted on Florida Rough Lemon were uprooted because of their poor performance, replaced by one row of grapefruit Juddoo budded on Florida Rough Lemon. Six plants produced 223 fruits. Four 8 year old plants of Juddoo grapefruit produced 10,711 fruits.

340. Thirteen 14 year old Java grapefruit seedlings produced 1,340 fruits.

341. Eight plants of 14 year old Semineole tangelo seedlings produced 9,102 fruits and five plants of 14 year old Mineole tangelo produced 700 fruits.

342. Thirty three 14 year old grafted Parson Brown orange plants produced 16,056 fruits including one plant bearing as many as 1,726 fruits.

343. Thirty eight 14 year old grafted Navel orange plants produced together 29,297 fruits.

344. Of the 14 year old waterkloof sweet orange seedlings only three did survive and two plants produced a total of 214 fruits.

345. Thirteen grafted 14 year old Navalencia orange plants produced 4,737 fruits.

346. The count of the citrus fruits mentioned above was made five months after fruits set. "Canker" was the cause of many fruit drops after count was made. Another cause of loss of fruits, particularly of Juddoo grapefruits, was the "penicillin rot". Aphids, mites, white flies were the major pests.

347. Budwood from selected plants of introduced varieties of Mandarines from South Africa was taken for propagation. Also seeds of Citrus fruits grown in the orchard were taken for sowing for propagation to obtain plants free from non seed borne diseases.

348. Navel oranges as in the past were the first to flower. Parson Brown and Valencia oranges flowered later.

Banana

349. Collection plots of the following varieties: Hybrid Ducasse, Philibert, Nouvelle France, Milk, Tahiti, Kisukari, Ollier, and Naine, were planted in a new field.

Peach

350. 6 year old grafted varieties Alexander Jewel, Hall's Yellow, Angel (B.E.S.) Teton de Venus, Babcock, Florida, Crawford, Angel (C.E.S.) King Edward VII and 6 year old seedling varieties Babcock, Florida Crawford, King Edward VII were maintained.

351. They produced fruits and, in spite of regular fortnightly sprayings, all fruits were attacked by fruit flies.

Nectarine

352. The one grafted plant which survived was maintained. It produced fruits which were attacked by fruit flies.

Persimmon

353. The plants showed no progress. Die-backs of twigs were observed. Shedding of leaves from April to October occurred as in the past.

Apple

354. The two grafted plants of Tropical Beauty produced few fruits. The shoots from the basal stock part were allowed to grow for use for propagation as stock plants.

Avocado

355. Of the fifteen grafted avocado plant varieties, namely: Fuerte, Aren, Saison, Edranol, Lula, Linda, Itsanna, Fairchild, Colinson, Pavenoy, Peterson, Black Round, No. 10, Taylor and Booth, plants of two varieties namely No. 10 and Taylor died. Some casualties also occurred amongst the plants of other varieties except amongst those of Itsanna and Aren.

Grapes

356. Plants of the "Citronnelle" variety grafted on stocks of (i) Couderc (ii) Isabelle Vacoas and Isabelle (B.E.S.) were maintained. Grafted plants of this variety showed greater vigour than plants grown on their own roots.

Strawberry

357. It was difficult to maintain the different varieties of strawberry because of pests.

Coffee

358. The 8 year old Kenya Arabica Coffee was maintained. The yield obtained was 2,142.9 lbs (Berries) or 600.6 lbs of unhulled dry coffee per acre. After harvest the plants were pruned by cutting back the plants at 10" above soil level to allow only two shoots to grow. Excelsa coffee of the same age produced 873.8 lbs berries or 220 lbs unhulled dry coffee per acre. The 3 year old plants of the different strains of Kenya Arabica, in the variety trial plots produced fruits. Seeds were collected and sent to Barkly Experiment Station for propagation.

Pawpaw

359. All varieties were planted in the interrows of coffee; they produced fruits.

Grass and Fodder

360. The fertilizer trial was discontinued and the elephant grass was maintained just for production of fodder. Five cuts were made during nine months and the interval of cuts was between 40 and 55 days. No irrigation was applied. Low yield was obtained because of prolonged dry conditions.

361. The experiment of the spacing trial with selected *Setaria* from Curepipe was discontinued and the grass was maintained from production of fodder. The yield was poor due to the dry conditions prevailing during the year. No irrigation was applied.

362. There was no regular interval between cuts because of drought.

363. With the FAO/UNDP Meat and Milk Project taking over the work on fodder the experiment of the variety trial with eleven types of grasses was dropped and the grasses were maintained for production of fodder.

364. Seeds of the introduced varieties of *Leucaena glauca* (acacia) were collected and sent to Barkly Experiment Station for sale. Quantities sent were 224.6 lbs of Guatemala, 5,456 lbs of Peru, 90.2 lbs Hawaii, 6.61 lbs Bald Hills, 1,666.8 lbs of local acacia seeds.

365. A total of 112.9 tons of green fodder was supplied to the Division of Veterinary Services, Réduit and 1.1 tons to Curepipe Livestock Breeding Station.

366. Collection plots of the following grasses were maintained: *Andropogon gayana*, *Panicum maximum* (Sigor), *P. maximum* (var. Mkarikariense), *P. coloratum*, *P. maximum* var. *Trichoglume*, *Fataque Madagascar*, *Chloris gayana* (Endebess), *Chloris gayana* (Mbararapa), *Giant Rhodes*, *Setaria* (Bua River), *Tripsachum laxum*, *Brachiaria brizantha*, *Brachiaria ruziziensis*, *Pangola*, *Katambora Rhodes grass*, *Cenchrus ciliaris* (Mbalamba); *Cenchrus ciliaris* (chippinga), *C. ciliaris setigerus*, *Paspalum notatum* (bahia grass) and *Selected Rhodes grass*.

367. The following grass and legume varieties were grown in introduction plots: *Eragrostis* sp., *Green panic* (*Panicum maximum* var. *Trichoglume*), *Blue panic* (*Panicum antidotale*) *Buffel grass* (Boorara) *Centrosema pubescens*, *Glycine javanica*, *Desmodium intortum*, *Townsville lucerne*, *Vigna marina* and *Cowpea* (Poona).

368. The legumes *Desmodium intortum*, *Glycine javanica*, *Siratro* (*Phaseolus atropurpureus*) and *Vigna marina* were grown in interrows of plants in the Citrus orchard as cover-crops

FOODCROPS

369. Collection plots of the following varieties of Cassava (Manioc) were maintained: (1) Manioc No. 29, (2) Paloma, (3) Desvaux, (4) Icery, (5) Manioc Blanc, (6) Cassava Beurraum, (7) de Table (Réduit), (8) de table (St. Martin), (9) Nestor, (10) Blanchitte, (11) Australia, (12) Negrita No. 15, (13) Rodney, (14) Butter Stick, (15) Singapore, (16) Negrita No. 17, (17) Yeyin, (18) Bitter, (19) Manioc Jaune (Trianon), (20) Manioc jaune (Rivière du Rempart). Planting materials of some varieties were given to some growers and to experimental stations. Different sources of same strain were given with a view to identify the strain.

Maize

370. About $\frac{1}{4}$ acre was planted to maize at the end of March for fodder production. 6.34 tons of green stalks were obtained and supplied to Curepipe Livestock Breeding Station.

Seed Production

371. Vegetables were grown for seed production. Cleaned seeds obtained for crops sent from Réduit to Barkly Experiment Station were as follows: Beetroot 1.435 kgs.; squash (Patisson) 800 grams.; cucumber 8 kgs.; Peas (Perfection) 11.8 kgs.; Peas (Local) 266.5 kgs.; Peas (Kelvendon wonder) 3.9 kgs.; Peas (Onward) 5.7 kgs. Peas (Blackeyed Susan) 4 kgs.; Brède de Chine 57.8 kgs.; Bocklah 92.9 kgs.; Beans (Pioneer) 59 kgs.; Rave Blanche 12.2 kgs.; Cabbage (Local) 190 grams.; Safran (Curcuma) 8.9 kgs.

BARKLY EXPERIMENT STATION

Seed Production

372. Some 49,300 lbs. of vegetables, paddy and other seeds were processed during the year. The area devoted to vegetable seed production was about thirty acres at Barkly. Conditions for seed production were generally favourable.

373. The value of plants and seeds sold to the public and issued, free to Government institutions for the last three years is as follows:

				1967	1968	1969
				Rs	Rs	Rs
Sale of seeds	...	...	...	30,564 59	40,132 10	27,130 07
Sale of plants	...	...	...	35,741 30	18,548 40	23,198 70
				66,305 89	58,680 50	50,328 77

Citrus

374. Over 320 rough lemon stocks, 250 Rangpur lime stocks and 60 Morton Citrange were successfully budded or grafted with varieties of mandarines for sale to the public.

375. A citrus orchard of $\frac{3}{4}$ acre was planted on the site of the old mango orchard. The following orange varieties, received from California and certified free of virus diseases, Hamlin, Navel, Pera and Valencia were planted after release, from the quarantine greenhouse. These citrus plants will provide budwood for a stock/scion experiment in future. The orchard also contains plants of the above four orange varieties grafted on the following 7 root stocks: Citrange Rusk, Citrange Troyer, Citrange Morton, Tangerine Sumki, Mandarin Cleopatra, Trifoliate Orange and Rangpur Lime. The budwood for these grafts was removed from 2 year old trees.

Coconuts

376. 4,677 seed nuts of the Malayan Dwarf and Pemba varieties from established plants at Plaisance Experiment Station were sown.

Litchi

377. Unfavourable climatic conditions adversely influenced the yield of crop. About 75,000 fruits were produced and were sold for Rs 1,012. 938 layers were produced.

OTHER ORCHARD CROPS

(a) Peach

378. Maintenance was carried out in the small peach orchard with the following grafted varieties: Angel Hall's yellow, Teton de venus, Alexander Jewel, Babcock, King Edward VII, Nectarine and Florida Crawford. The plants fruited but fruit fly control was unsatisfactory. 125 fruits from different plants were bagged after fruit set and they were free from attack and were harvested. There were also seedling plants of the local variety which produced fruits that were also attacked by insects. 31 peach grafts were produced.

(b) Grapes

379. The table grape variety 'Citronelle' which had been grafted on three different stocks, namely Couderc 13, Isabelle Vacoas, and Isabelle B.E.S. made satisfactory growth and showed greater vigour than 'Citronelle' grown on its own roots. 29 grafts were produced.

(c) Mango

380. 9,970 mango seeds of Maison Rouge variety were sown and 2,407 seedlings were obtained. 377 mango grafts were produced.

ABERCROMBIE NURSERY

Sale of Plants

381. During the year, 9,137 plants were sold to the public for the sum of Rs 4,823.20. Most of the plants sold were supplied by Royal Botanic Gardens Nursery and Barkly Experiment Station. Some species, however, were propagated on the station itself.

Coconut

382. In addition to Pemba and Ceylon varieties, the three varieties, red, green and yellow of Malayan Dwarf were sown and seedlings put on sale.

Grapes

383. Of the different varieties of grapes on the station only Citronelle flowered and fruited. The yield of fruits harvested was 9 kgs.

Mangoes

384. The orchard was regularly circle-weeded, fertilized and at inflorescence sprayed with "Bidrin" and "Phaltan" to control insects and fungal diseases. The orchard contains 304 mango plants of different varieties, of which only 177 fruited. A fairly good crop of mangoes of the varieties Auguste, Aristide, Baissac, Rosat, Maison Rouge was obtained. Apart from Maison Rouge mangoes, which were sent to Royal Botanical Gardens Nursery for raising seedlings and to be used as stock in grafting, the fruits from the other varieties were sold to the highest bidder for Rs 257.50.

Onion

385. The horticulturist carried out an experiment of a monthly sowing with 4 varieties, namely Red Creole tropicana Hybrid, Red Creole, Rowcliff Brown and Local Red, to determine the best season for maximum yield of each variety.

Seed Production

386. Vegetable crops were planted for seed production and the seeds harvested were sent to Barkly Experiment Station to be cleaned and sold to the public.

ROYAL BOTANICAL GARDENS

387. The Nursery supplied 11,453 plants to Abercrombie Nursery and Barkly Experiment Station for sale to the public.

ORCHARD

Mango

388. Special attention has been given to the propagation of mango plants. The mango trees flowered poorly in general and the fruits produced were very scarce.

Litchi

389. The litchi plants produced a heavy crop this year and the fruits were sold by auction for Rs 1,050.

Rice

390. For seed bulking purpose 18 new varieties of rice were grown in October on about one quarter of an acre of marshy land. In addition the three varieties namely, TN, YRL, and Begami were grown in observation plots.

Weather conditions

391. The total rainfall for the year amounted to 60.31 inches, with falls mostly in March (10.4 inches), April (10.10 inches) and December (12.10 inches).

Citrus

392. The Citrus trees were sprayed regularly with fungicides and insecticides and fertilizers were applied according to programme. Watering, weeding, cleaning and pruning have also been done as and when required.

Pemba Coconut Palms

393. Regular treatments with "Dipterex" were effected on the coconut trees to control the "Rhinoceros Beetles". The palm trees were circle-weeded and complete fertilizer mixture applied according to programme.

ROYAL BOTANIC GARDENS' NURSERY

394. Plants continued to be propagated in the Nursery for sale at Abercrombie Nursery and Barkly Experiment Station. 895 mango grafts of various varieties were made on seedlings of variety Maison Rouge. Of these 129 were successful.

395. Seeds of the various palm varieties grown in the garden have been raised partly for replacing vacancies for recruiting and partly for sale to the public from the nurseries at Abercrombie Nursery and Barkly.

PAMPLEMOUSSES EXPERIMENT STATION

Tobacco

396. Three and a half acres of land were planted for the production of the flue-cured variety NC 95. Several plants were selected for seed production and the seed heads were sent to Richelieu for processing. The leaves obtained were harvested and sent to Richelieu Experiment Station for curing.

397. A total of 853.7 kgs of dry leaf were sold to the Tobacco Board for the sum of Rs 6,514.56.

Foodcrops and Vegetables

398. Several crops such as chinese kale, lettuce, peas, beans and ladies' fingers have been grown for seed production.

399. A monthly sowing experiment has been carried out for the determination of the best planting time with the following pulse crops:

- (1) Khesari — *Lathyrus sativus*
- (2) Emberique green — *Phaseolus max.*
- (3) Emberique black — *Phaseolus mungo var. Radiatus*
- (4) Broad bean — *Vicia faba*
- (5) Lentil — *Lens esculenta*
- (6) Pigeon pea — *Cajanus indicus*
- (7) Cow pea — *Vigna sinensis*
- (8) Soyabean — *Glycine hispida*

400. An observational trial with seven imported varieties of maize was planted on 18th October, 1968. The holes were spaced by 3 ft x 2 ft and farmyard manure at an average of 15 tons per acre and fertilizer mixture 12:12:20 at the rate of 100 kgs. per acre were uniformly applied before planting. A top dressing of sulphate of ammonia at the rate of 50 kg/acre was applied when the plants had reached knee height. The results were as follows:

<i>Variety</i>		<i>Yield of air dry grain in Kg/ Acre</i>
(1) R 632	...	427
(2) Hybrid 157	...	630
(3) „ 182	...	763
(4) „ 170	...	720
(5) S/Africa 100	...	202
(6) „ 4	...	52
(7) Israël 22	...	780
(8) Local	...	405

401. The results have shown that varieties Israel 22, Hybrid 182, Hybrid 170 and Hybrid 157 have shown good promise.

Bois Marchand

402. 25 acres of land are under Pangola and acacia. Five more acres have been cleared and will go under Pangola soon. About 34 tons of green fodder were distributed to cow keepers free of charge.

403. 899 mango seedlings of variety Maison Rouge and 215 mango seedlings of various other varieties have also been planted during the year.

Pointe-aux-Piments

404. 12 acres of land have been cleared of wild growth out of which 2 acres have been put under acacia. The germination of the acacia seeds was good, but the plantation has suffered from damages caused by stray goats roaming about in the fields especially after working hours.

Arsenal

405. The 12 acres of land under Pangola have been maintained. 77 permits were issued to cowkeepers of the vicinity and 16 tons of fodder were distributed to them.

RICHELIEU EXPERIMENT STATION

Development

406. The main development work consisted of redesigning all fields in the 3 blocks constituting the major part of the station. This work was ended by the end of the year. It consisted mainly in building new roads and getting all fields in rectangular shape. The great advantage of this is that experiments can be more easily laid out. Storm drains have been maintained.

Tobacco

407. Methyl Bromide again was used in the sterilisation of beds. Although very toxic to animals, this has become the main chemical for the treatment of seed beds. Its action, specially on chiendent (*Cynodon dactylon*) and onion grass (*Cyperus rotundus*) is spectacular, the treated areas remaining free from these weeds for at least 3 months.

408. The practice of raising seedlings has now become standardised. The beds are normally 25' long by 4' wide, 8" high, covered with not too fine manure, an application of 1 kg. of 10:28:14 and the whole bed treated with methyl bromide at the rate of 1 lb. per bed for 48 hours. The optimum seed rate would be about 2-3 ccs per bed, the seed being diluted in fine sand and spread as evenly as possible. The raising of seedlings for growers was done. About 25,000 Amarello seedlings were bought by air curers.

409. No new varieties were released. Virginia varieties under large scale cultivation on the station have been narrowed down to two. Firstly, Yellow Mammoth which has maintained its popularity for the past fifteen years and secondly the more recently released variety NC 95. The last named is very resistant to nematodes and Black Shank and its average yield of dry leaf is about 600 kgs per acre. Other varieties under trial include Pee Dee 611 PD 97, Coker 187, Vesta 30, Bonanza, Kutsaga Mammoth.

410. Air-cured varieties still on trial include Burley 11A, Burley 11B, Burley 37, and the more recently introduced Maryland 59, Maryland 609. The leaf yield of Amarello is superior to that of the Burleys and its curing is comparatively easy.

411. A variety trial to compare the yield and quality of six flue-cured varieties was carried out. There was no significant difference in yield of quality. This trial will be repeated at P.E.S. next year.

412. Another trial for the control of nematodes was carried out in collaboration with the Plant Pathologist. The nematocide used was Shell DD. The treated plots performed better than the non-treated ones. This trial will be repeated in March 1971, when the economics of the use of nematocides will also be worked out.

413. Two varieties of Oriental tobacco, Samsoun and Soluk have been planted and seed produced.

414. Some types of tobacco imported in 1966 are still under observation. These are 2 air-cured varieties Kentucky 151 and Burley 2, 3 varieties of Cigar RG, Havana and Pennsylvania from U.S.A.

SEED PRODUCTION

415. As usual tobacco seeds from selected plants were produced at the Station for distribution in due course to tobacco growers by the Tobacco Board.

416. All leaf produced was sold to the Tobacco Board: 4,483 kgs of Virginia for a gross value of Rs 25,880 and 1,027 kgs of air cured varieties for Rs 3,558.

Curing

417. Oil curing has now become normal practice due primarily to low cost and ease of operation. The cost of curing would normally be 25 cents per kg which is half the cost when wood is used as fuel and less than $\frac{1}{3}$ when propane gas is used.

Sugar Cane

418. The total harvest amounted to 653.590 metric tons, an average of 30.57 tons per acre.

Orchard

419. Mango and litchi orchards have made good progress. The mango orchard which bore a good crop was sold for Rs 2,610. Seeds of Maison Rouge were sent to Barkly Experiment Station for propagation. A new citrus orchard is being prepared for planting new varieties of Mandarines and oranges.

FOODCROPS

(a) Maize

420. About 8 acres of maize were planted in September. Irrigation was carried out to induce germination. Cobs have been selected for seed production and the bulk of the grains sold to the Livestock Feed Factory.

(b) Groundnuts

421. Plantation of about 7 acres of groundnuts was started in October with varieties Beit Dagan, NC2, Virginia Bunch and Cabri. Irrigation was done at the beginning to induce germination. Harvest of the crop will start in March 1970.

Livestock

422. The cowshed which can house 16 animals was maintained throughout the year. Heifers were served by a bull on the station and in-calf heifers were sent to Curepipe Breeding Station before calving

Plant Pathology Division

TOBACCO

423. At Ville Valio severe leaf spotting caused by *Phyllosticta tabaci* occurred in a N.C. 95 plantation in May. A *Colletotrichum* sp. was identified for the first time on some of the leaves with *Phyllosticta* leaf spot, and its pathogenicity has not been established.

424. At Arsenal bacterial wilt (*Pseudomonas solanacearum*) was severe in an Amarello plot where groundnut and tomato had been previously grown.

425. A severe weed-killer damage occurred in a field at Etoile in September.

426. A tobacco plantation in the Massilia area was affected with *Alternaria longipes* in October. Frog eye (*Cercospora nicotianae*), which appeared in a few plantations, did not spread owing to severe drought conditions. The *Alternaria* leaf spot seemed to have been more prevalent this year than the *Cercospora* leaf spot.

427. Tobacco mosaic has been particularly severe in localities where the recommendation that solanaceous and other vegetable crops should not be grown in the proximity of tobacco fields was ignored.

428. Heavy nematode infestation occurred in the coastal sandy regions. Poor stands and low yields due to nematode infestation are of some importance to the tobacco industry. A pilot experiment with the soil fumigant D-D (dichloropropane-dichloropropene) was carried out at Richelieu Experiment Station with twelve tobacco varieties. Under the conditions of the experiment soil fumigation with D-D previous to transplanting produces increases in yield in some varieties.

TEA

429. Brown leaf spot associated with *Cylindrocladium macrosporium* and *Cercospora theae* was prevalent in a field at Wooton. A few patches of tea bushes grown in improperly drained soil showed severe attack by brown blight (*Colletotrichum camelliae*) in August.

430. In a plantation at Wooton Experiment Station several tea bushes were affected with charcoal stump rot (*Ustilina Zonata*).

431. At the tea seed gardens of Salazie and Nouvelle Decouverte a die-back associated with *Armillaria* root rot was sufficiently common to cause some alarm.

POTATO

432. Potato seed rot caused by bacterial soft rot organisms was widespread in April and May, particularly in the North Plaines Wilhems and Black River districts. A survey performed showed that seed rotting varying from 20 to 90 per cent occurred in the fields with variety King George. Seed potatoes of variety Up to Date were found on examination to be also suffering from bacterial soft rot, black heart and hollow heart.

433. The bacterial soft rot and physiological troubles of this year resulted from improper packing and careless handling.

434. Potato late blight (*Phytophthora infestans*) first appeared in June, but was not severe on first season plantations. During winter months this disease was not very serious although it occurred in the wetter localities on varieties King George and Up to date.

435. Leaf roll was unusually prevalent in most plantations of the variety King George and occurred to the extent of 5 to 10 per cent. The variety Delaware imported from Australia also showed various virus infections by the leaf roll virus, potato virus X and potato virus Y.

436. In September, potato mildew (*Leveillula taurica*) was observed in some plantations at Nouvelle Decouverte and in the North and Black River districts.

437. Potato early blight (*Alternaria Solani*) which normally occurs in Mauritius late in the season was observed causing some damage to plantations in the Pamplemousses district in August. Late plantations were severely attacked by early blight in many localities particularly at Nouvelle Decouverte where a variety trial with Up to Date, Delaware, Wheeler, Van der Planck and King George was severely defoliated in October. No varietal resistance could be assessed.

438. An unidentified disease with symptoms of leaf spotting and necrosis was observed at Cote d'Or and Tamarin in July and August. It occurred on King George and Up to Date.

439. In a variety trial varieties Wheeler and Norin were more susceptible to bacterial wilt (*Pseudomonas solanacearum*) than King George and Up to Date. All varieties tested seemed to be equally susceptible to late blight.

440. A fungicide trial was carried out in June at Reduit using King George Certified 'A' seed. Treatments used and results obtained are shown in Table 1. Significant differences at the 5 per cent level among means for each treatment were determined by Duncan's multiple range test.

441. Effect of fungicide treatments on potato late blight:

Treatment		Rate of application lb/acre	Mean yield kg/plot	Disease rating*
Dithane M-45	...	2.0	8.625	3
Daconil	...	1.5	6.412	4
Brunomax	...	1.5	4.350a	6
Difolatan	...	2.0	4.275a	6
Control	...	—	2.090	8

*0 = no disease 8 = 100% leaf area destroyed.

The small letters indicate Duncan's multiple range groupings of treatments which do not differ significantly at the 5 per cent level.

MAIZE

442. Bacterial soft rot (*Erwinia carotovora*), identified for the first time on the crop, was severe in May at Richelieu Experiment Station on the local variety.

443. Maize rust (*Puccinia polysora*) was unusually severe during the year and caused blighted conditions in most localities.

444. At Reduit and Vacoas there were severe outbreaks of both *Helminthosporium* leaf spot (*Helminthosporium turcicum*) and rust (*Puccinia polysora*). Another rust (*Puccinia sorghi*) which had not been encountered for many years occurred at Reduit.

445. In a field at Etoile, maize stripe, a virus disease, was observed on a variety of maize imported from Israel. *Ascochyta* leaf spot (*Ascochyta zeae*), a disease of minor importance, occurred on the same plantation.

RICE

446. The leaf yellowing and bronzing disease of rice, of unknown cause and previously reported in 1968, was again reported at Curepipe Experiment Station and F.U.E.L. The symptoms of this disease, in addition to the foliage discoloration, are the occurrence of reddish brown streaks on the leaves and roots and a general stunting of affected plants.

447. The varieties showing the symptoms were Begami, Saturn, YRL 1, YRL 2, and IR 8 while Taichung was only mildly affected. At Curepipe Experiment Station reddish brown streaks, similar to those occurring on rice, were observed on *Pennisetum purpureum* and *Setaria* sp.

448. Brown leaf spot caused by *Helminthosporium* sp. occurred at Curepipe Experiment Station and Nouvelle Decouverte on leaves and glumes.

449. The following fungi were recorded for the first time:

Pithomyces sacchari (Speg.) M.B. Ellis

Alternaria sp.

Conidial *Cochliobolus miyabeanus* (Ito and Kur) Dreschl ex Dastur

Epicoccum purpurascens Ehrenb. ex Schlecht

Phyllosticta sp.

450. A seed dressing trial was carried out at Curepipe Experiment Station on the effect of seed treatments on seed borne diseases of rice.

451. In a four-replicate randomized block experiment rice seeds of variety Begami were treated and pregerminated before planting. Seedling count was made a month after planting and yields of paddy were taken one week after harvest. The results obtained are shown below.

452. Effect of seed treatments on seedling emergence and yield of rice.

Treatment				Mean No. of seedling emergence per replicate	Mean yield per replicate in lb
Hot water treatment 55°-57°C for 15 minutes	...			127	63
Agrosan 1 g/kg paddy	...	...	...	112	46
Control	...	...	...	53	31

453. Although yields were higher in treated than in untreated plots, the results obtained were not satisfactorily significant.

TOMATO

454. Tomato mosaic was unusually severe in June at Le Souffleur and Mahebourg. At Le Souffleur the symptoms differed from common mosaic and suggested the ancuba strain of tobacco mosaic virus.

455. Bacterial wilt (*Pseudomonas solanacearum*) was moderately severe in some plantations in the north in May.

GROUNDNUT

456. *Cercospora* leaf spot (*Cercospora arachidicola* and *C. personata*) caused the usual damage.

457. A severe attack of groundnut seedlings caused by the root and collar rot organism, *Aspergillus niger*, occurred at Chebel in the Black River district in September. Post-emergence death of groundnut plants caused by *Aspergillus niger* also occurred to a minor extent in several localities at Médine, Plaisance and Bambous Virieux.

PEA

458. Experiments on the control of seedling diseases of groundnut, variety Cabri, were started at Réduit and Plaisance in February and at Nouvelle Découverte in March. They were randomized block experiments. Treatments were replicated four times and assessment of seedling emergence made approximately twenty days after sowing.

459. Treatments employed and results are shown hereunder:

Effect of seed treatments on seedling emergence of groundnut.

Treatment	Rate of Applicate g/kg seeds	Seedling emergence		per replicate
		Reduit	Plaisance	N. Decouverte
Difolatan	1.5	143	695	—357
Captan 75	1.5	140	650	—386
Agrosan	2.0	141	660	—255
Agrosan	1.0	142	666	not tested
+	+			
Captan 75	1.0			
Control	—	126	648	—450
L.S.D. 0.05	—	9.88	N.S.	20.26
L.S.D. 0.01	—	13.82	N.S.	28.80

460. *Aspergillus* spp. and *Penicillium* spp. were the commonest fungi encountered on rotten seeds. Yield data were not taken. The results obtained suggest that seed treatment is to be recommended before planting.

Onion and Garlic

461. A survey of onion and garlic plantation was effected in May and June. Incidence of purple blotch disease, caused by *Alternaria porri*, was slight on onion. The disease, however, caused more damage on garlic, particularly at Flacq.

462. Blast of onion (*Botrytis squamosa*) was widespread in the Palmar area, Rivière des Anguilles and Plaisance. In Palmar the incidence was highest in very sandy soils. Blast of onion is not satisfactorily controlled by fungicide treatment and investigation involving the use of special spreader stickers recently obtained from the United States have been planned.

463. Corm rot of garlic caused by *Aspergillus niger* was recorded for the first time.

464. Pink root rot (*Pyrenochaeta terrestris*) of onion was severe particularly on newly introduced varieties at Plaisance Demonstration Centre.

465. Garlic rust (*Puccinia allii*) first recorded in 1968, was again observed at Barkly Experiment Station and St. Pierre. This disease was erratic in distribution and no assessment can as yet be made as to its economic importance. Spraying with Zineb satisfactorily controlled it at Barkly.

466. The local garlic variety is more resistant to this rust than several imported varieties.

EGGPLANT

467. Eggplant wilt (*Phomopsis vexans*) was severe in the North, particularly in April.

BEAN

468. Anthracnose (*Colletotrichum lindemuthianum*) and angular leaf spot (*Isariopsis griseola*) were prevalent in many localities. At Barkly Experiment Station they caused substantial damage on variety Long Tom while variety Victory suffered more from nematode attacks. At the same Station heavy attacks by *Isariopsis griseola* occurred on variety Golden Podded at post-maturity stage in June. This disease can be controlled by fungicides.

469. Mosaic disease of bean occurred on Long Tom at Réduit, Vacoas and Plaisance. This disease is becoming increasingly important on the crop and also affected the local variety.

470. Severe canker (*Rhizoctonia solani*) was reported from Beau Plan and The Mount and from several localities at Moona. This disease will be investigated upon.

PEA

471. At Barkly Experiment Station while whole fields of Chinese pea were severely affected by *Fusarium* wilt (*Fusarium oxysporum*) the local variety growing in an adjacent field was only slightly affected. It is not as yet known whether this difference was due to different degrees of susceptibility to *Fusarium* wilt.

472. *Ascochyta* blight (*Ascochyta pisi*) was severe on several imported varieties at Barkly. However, plantations raised from seeds dipped in "Captan 50" for 24 hours were substantially free from this disease.

473. In many other localities powdery mildew (*Erysiphe polygoni*) and *Ascochyta* blight were severe.

474. Two fungicide trials were performed at Plaisance and Pamplemousses on powdery mildew control of pea, variety local.

475. The fungicides tested included the following new chemicals:

- (1) Benlate—Du Pont compound 1991 (1-butyl carbamoyl-2-benzimidazole carbamic acid, methyl ester, 50 per cent w.p.).
- (2) Daconil 2787 (tetrachloro isophthalonitrile, 50 per cent w.p.).
- (3) Thiovit (micronised elemental sulphur, 80 per cent w.p.).

476. At Plaisance the test consisted of seven treatments replicated four times in a randomized block design. Double rows, 50 feet long, with plants spaced at 15 inches in the row, were spaced three feet apart. Seeds were dipped in "Captan 75" (1 g/kg. seeds) for 24 hours for *Aschochyta* control and planted in May.

477. High volume spray applications at the rate of 100 gallons of spray suspension per acre were started six weeks after planting and continued at weekly intervals for four weeks. Harvest of dry pods was made two weeks after the last spray application. Appropriate insecticides were used to control pod borers. Treatments and results were as follows:

478. Effect of fungicide treatments on powdery mildew of pea.

Treatment				Rate of application lb/acre	Mean yield of seeds per replicate kg
Daconil	...	...	...	1.5	2.12 a
Karadthane	...	...	...	0.5	2.12 ab
Benlate	...	...	...	0.25	1.87 abcd
Benlate + Daconil	...	...	...	0.5 + 1.5	2.01 abc
Benlate	...	...	...	0.5	1.70 cde
Benlate	...	...	...	1.0	1.54 def
Control	...	...	...	—	1.50 def

479. The data obtained were analysed statistically. The small letters indicate Duncan's multiple range groupings of treatments which do not differ significantly.

480. At Pamplemousses seeds were planted in June. Fungicides were applied in a randomized block design with four replicates per treatment. Seed treatment and spacing of plants were as in the previous experiment.

481. Seven fungicide applications, at weekly intervals, were made starting three weeks after planting. Spraying was effected at the rate of 25 gallons of suspension per acre, using a motorized mistblower delivering one litre of spray formulation per minute. Appropriate insecticides were used to control pod borers. Harvest of dry pods was made two weeks after the last spray application, and yield data taken from the middle row of each treatment were statistically analysed. The results obtained are presented in the following table.

Treatment				Rate of application lb/acre	Mean yield of seeds per replicate kg
Thiovit	...	...	...	2.0	1.63 a
Benlate	...	...	...	0.3	1.44 ab
Karathane	...	...	...	0.5	1.27 abc
Daconil	...	...	...	2.0	1.22 bc
Control	...	...	...	—	0.53

482. The results of the two experiments indicate that Thiovit (2lb/acre), Benlate (0.3lb/acre), Karathane (0.5lb/acre) and Daconil (2lb/acre) produced a significant control of pea powdery mildew.

CHILLIES

483. Chillies die back caused by *Phomopsis caprici* was very prevalent in many localities. Very little is known about this disease under our conditions and investigations will be undertaken.

BOKLA

484. A severe attack of bokla (*Vicia faba*) by stem rot (*Sclerotinia sclerotiorum*) was reported from Vacoas Demonstration Centre and Nouvelle Découverte in August. Leaf spot caused by *Cercospora zonata* caused severe defoliation in both localities.

CUCURBITS

485. Cucumber anthracnose (*Colletotrichum lagenarium*) caused some damage in the wetter localities in February.

486. An imported variety of cucumber grown in the Beau Plan region was severely affected with soft rot (*Erwinia* sp.), a new record for Mauritius.

487. A survey of squash diseases was performed at Curepipe Experiment Station in June with the following results.

Disease				% Plants affected
Scab	...	...	...	40
Mosaic	...	...	...	2
Downy mildew	...	...	...	2
Powdery mildew	...	...	...	1

GINGER

488. A severe leaf spotting of ginger, of unknown cause and reported in previous years, again occurred in several localities.

COFFEE

489. Coffee berry disease was reported causing some damage to coffee plants of the variety K 7 at Chamarel and Bel Ombre.

ARTICHOKE

490. A bacterial disease causing a greasy spotting and blackening of the inflorescences was reported towards the end of the year. The disease is more prevalent in the wetter months and seems to be the major problem with the crop.

PINEAPPLE

491. Several diseases affecting the marketing of this crop caused some concern.

492. A side rot of pineapple fruits and symptom of sunscald caused some damage at Les Mariannes in January. A *Penicillium* sp. was isolated from diseased fruits.

493. An internal brown rot of pineapple, believed to be due to born deficiency, was common from October to December on the variety Queen Victoria.

494. Several cases of fruit cracking were observed at Crève Coeur following heavy rains in December.

BANANA

495. Cigar end rot (*Verticillium theobromae*) caused some damage in the Savanne district. In a field at Chemin Grenier about every finger in some bunches showed symptoms typical of the disease: a dry rot sharply delimited from the uninvaded tissue.

CITRUS

496. A survey of citrus plantations was made throughout the island to determine the extent of damage caused by greening and other virus diseases. The distribution of the various virus diseases was found to be erratic. However, it was generally observed that plantations regularly sprayed with insecticides were relatively healthy and productive. Plants showing typical symptom of greening only occurred to a percentage not exceeding 5 per cent. Oranges, Tangelos and Juddoo grape fruit seemed to be tolerant to greening. Symptoms of tristeza disease occurred on Mexican lime and Marsh grape fruit.

497. Citrus fruit rot caused by *Penicillium* sp. and *Colletotrichum gluesporioides* were recorded, the latter for the first time. The former was more prevalent in the wetter localities.

498. Citrus plants, particularly lemon, were severely affected by canker (*Xanthomonas citri*) at Mapou Demonstration Centre. However, sweet orange plants growing in the same orchard were only slightly affected.

499. Citrus die-back with *Phomopsis citri* and *Colletotrichum gluesporioides* in association caused some damage in an orchard at Case Noyale.

AVOCADO

500. Fruit anthracnose (*Glomerella cingulata*) is a new record. Large dark eruptions on fruits with a *Colletotrichum* sp. in association is another new record. Both diseases caused some concern at Barkly Experiment Station.

PAW PAW

501. Mycological research carried out in the laboratory and in the fields has demonstrated that *Ascochyta carica* and *Sphaerella carica*, causing fruit rot of pawpaw and formerly considered to be two distinct pathogens, are in fact the imperfect and perfect stages respectively of the same organism.

PALM

502. Several areca palms at Ferney were affected with a heart rot which killed many trees. The disease, which is suspected to be bacterial, could be due to the soft rot, rot bacterium.

COCONUT

503. Several cases of heart rot with *Fusarium oxysporum* in association were reported during the year.

CASTOR BEAN

504. Recently introduced castor bean at Réduit was found to be affected with *Alternaria* leaf spot (*Alternaria* sp.) a new record. Plants showing poor growth at Réduit and Pamplemousses were found to be attacked by bacterial wilt (*Pseudomonas solanacearum*), another new record.

PLANT INSPECTION AT CUSTOMS AND AIRPORT

505. 674 plant import permits and 946 phytosanitary certificates were delivered as well as 2,500 certificates of examination for articles being imported. On two occasions ware potatoes from South Africa were detailed for washing for containing excessive quantities of soil.

506. 112 ships and 734 airplanes, including 52 military aircraft, were attended to.

507. Commercial consignments of ginger (788 $\frac{1}{4}$ tons), litchis (308 cartons), mangoes (90 cartons), longanes (51 cartons), pineapples (43 cartons), avocados (23 cartons), and miscellaneous vegetables (115 cartons) were examined and certified for despatch to foreign countries.

508. Fumigation operations were performed at the fumigation plant, Fort-Georges.

509. Fees collected amounted to Rs 3,393.60.

510. At Plaisance Airport an incinerator has been housed in a building provided by the Department of Civil Aviation.

511. At the Customs, Port Louis, a new Plant and Animal Quarantine Office is under construction.

PLANT QUARANTINE

512. The following plants were in quarantine in the Plant Pathology Division greenhouses.

RICE

<i>Country of Origin</i>	<i>Variety</i>
Philippines ...	IR 5
do ...	IR 8
do ...	IR 154-61-1-1
do ...	IR 485-2-14-1
do ...	IR 262-43-8-11
do ...	IR 532-E-576
do ...	IR 532-E-257
do ...	IR 532-E-239
do ...	IR 532-E-210
do ...	IR 532-E-420
do ...	IR 532-E-208
do ...	IR 400-28-4-5
do ...	IR 127-80-1-10
do ...	C4-63
do ...	IR 8 (68)
Taiwan	Dee-geo-woo-gen
do ...	Tainung Selection No. 1
do ...	Tainung Selection No. 2
do ...	Tainan No. 5
do ...	Chianan No. 8
do ...	Taichung No. 186
do ...	Hsinchu No. 56
do ...	I-geo-gen
do ...	Taipei No. 310
Australia	Caloro II
do ...	Calrose
do ...	Blue Bonnet
do ...	Kulu

513. Varieties IR 127-80-1-10 from Philippines and Dee-geo-woo-gen and Tainung Selection No. 2 from Taiwan showed disease symptoms and were destroyed.

514. The following rice varieties were planted in quarantine in October.

<i>Country of Origin</i>	<i>Variety</i>
India ...	Jaya
	Padma
Philippines ...	M1-48
	Azucena
	Palawan
	Dinalaga

TEA

515. Tea clones from East Africa were grown in quarantine.

GRAPE VINES

516. Grape vines for a member of the public were placed in quarantine.

TOBACCO

517. The following varieties were planted in quarantine in October and December:

S.C. 66
Kutsaga E 1
Kutsaga E 2

COTTON

518. The following varieties were planted in quarantine in October:

Miller M 66-15
Rex Smooth leaf
MCV

GRASS

519. Cuttings of *Pennisetum purpureum*, variety Kisozie, were planted in quarantine in September.

PINEAPPLE

520. Two varieties of pineapple, now in the open quarantine plot at Reduit, will be released in the near future.

521. Two spacious additional quarantine greenhouses are now under construction. Some cubicles will be equipped with air-conditioning units suitable for raising plants requiring moderate temperatures.

522. The sugarcane quarantine greenhouse was operated on behalf of the Ministry by the Mauritius Sugar Industry Research Institute. The following rice and potato varieties were in quarantine.

RICE

<i>Country of Origin</i>	<i>Variety</i>
Philippines ...	15665 seed source 6291
do ...	15665 seed source 6292
do ...	IR 400-28-4-5
do ...	IR 665 seed source 178-305-604
do ...	IR 262-43-8-11
do ...	IR 532 seed source 9311
do ...	IR 532 seed source 9319
do ...	IR 532 seed source 9334
do ...	IR 5
do ...	Milfor-6 (2)
do ...	Palawan
Taiwan ...	Kao Shiong 137
do ...	Kao Shiong 136
do ...	Kao Shiong 64
Madagascar ...	1345
do ...	A 6
do ...	6383
do ...	Tainan 111
do ...	Taichung native No. 1
do ...	IR 8
do ...	AT
do ...	1632
do ...	1329

POTATO

Nanisana
 Betampona
 Radosa—Betampona
 Sebago
 CB 52-1059
 Savinandriana—Nanisana
 Savinandriana—Betampona
 Gineke—Betampona

523. All eight varieties were destroyed after showing disease symptoms.

MISCELLANEOUS DISEASES AND FUNGI

524. The following were recorded for the first time in 1969.

Host		Disease		Causal Organism
<i>Acalypha indica</i>	...	Leaf spot	...	<i>Alternaria</i> sp.
Orchid	...	Flower rot	...	<i>Pestalotia</i> sp.
Avocado	...	Fruit rot	...	<i>Colletotrichum</i> sp. in association
Avocado	...	Fruit anthracnose	...	<i>Glomerella cingulata</i> (Stonem) Spauld and V. Schrenk
<i>Artocarpus communis</i>	...	Fruit rot	...	<i>Glomerella cingulata</i> (Stonem) Spauld and V. Schrenk
<i>Anacardium occidentalis</i>	...	Leaf spot	...	<i>Cephaeleuro virescens</i> Kunze (Syn. <i>C. mycoidea</i> Karst.)
Mandarine	...	Fruit rot	...	<i>Colletotrichum gluerporioides</i> Penz.
Rice	...	Grain discoloration	...	<i>Pithomyces sacchari</i> (Speg.) M. B. Ellis
		do.	...	<i>Nigrospora</i> state of <i>Khuskia oryzae</i> Hudson
		do.	...	<i>Alternaria</i> sp.
		do.	...	Conidial <i>Cochliobolus miyabeanus</i> (Ito & Kur) Drechs. ex Dastur
		do.	...	<i>Epicoccum purpurescens</i> Ehrenb. ex Schlecht
<i>Hibiscus rosasinensis</i>	...	Die-back	...	<i>Phomopsis</i> sp.
Statice	...	Leaf and stem spots	...	<i>Cercospora</i> sp.
Pawpaw	...	Fruit rot	...	<i>Ascochyta caricae</i> Pat and <i>Mycosphae- rella Caricae caricae</i> Syd. (Syn. <i>Sphaerella caricae</i> Maub ?)
Castor Bean	...	Wilt	...	<i>Pseudomonas solanacearum</i> (E. F. Sm. E. F. Sm.
Castor Bean	...	Leaf spot	...	<i>Alternaria</i> sp.
Cucumber	...	Soft rot	...	<i>Erwinia</i> sp.
Garlic	...	Corm rot	...	<i>Aspergillus niger</i> van Tieghem
Maize	...	Stalk rot	...	<i>Erwinia carotovora</i> (Jones) Holland

XIX. Entomology Division

BIOLOGICAL CONTROL

Stable Flies

525. Encouraging results were obtained in the bio-control of the stable fly, *Stomoxys nigra*, *S. calcitrans* with the various Pteromalid parasites:

1. *Spalangia nigra*
2. *Muscidifurax raptor* (Puerto Rican strain)
3. *Muscidifurax raptor* (Chilean strain)
4. *Muscidifurax raptor* (Large South Western strain)
5. *Muscidifurax raptor* (Chilean gregarious strain)
6. *Pachycrepoides vindemiae*
7. *Sphegigaster* sp.

526. During the year 2,664,600 parasites in the *pre puparia* stage were received from the West Indian Station of the Commonwealth Institute of Biological Control and 250,000 were produced in the Division.

<i>Parasites</i>	<i>No. received</i>	<i>No. liberated</i>
<i>Sphegigaster</i> sp.	... 207,900	198,700
<i>P. vindemiae</i> ...	... 229,100	224,600
<i>M. raptor</i> ...	... 1,632,900	1,622,700
<i>S. nigra</i> ...	... 594,700	578,200
Local production	... 250,000	202,100
TOTAL	... 2,914,600	2,826,300

527. These parasites were released at the following sites:

- | | |
|----------------------|-----------------------------|
| 1. Curepipe L.B.S. | 9. Mon Choisy S.E. |
| 2. Baie du Cap | 10. Yemen |
| 3. Le Morne | 11. Savannah |
| 4. Beau Champ S.E. | 12. St. Felix |
| 5. Pailles | 13. Constance |
| 6. Etoile S.E. | 14. Chebel |
| 7. La Chaumière S.E. | 15. Moka (Poultry Industry) |
| 8. Tamarin | 16. Reduit |

528. Regular surveys were done at various liberation sites to assess the effectiveness of the parasites. The percentage parasitism averaged 40.

Euglandina Rosea

529. The population of this carnivorous snail seems to be growing bigger year after year. About 700 of them were collected at Reduit and Floréal and redistributed to other localities.

Oryctes Rhinoceros

530. The Rhinoceros beetle seems to have moved south. Isolated attacked plants have been seen in the region of Mahebourg, Pointe Jerome, Souillac and St. Felix.

531. The situation in the North remains alarming but does not seem to get worse. In some places where regular application of granular Dipterex (2.5 per cent) and cleaning up of plantation and adjacent areas were carried out, the plants are showing signs of recovery and most of them are producing new healthy fronds.

Insecticidal Trials

532. During the year field trials were carried out at various agricultural stations to assess the effectiveness of various pesticides. The trials were limited to 3 crops: (1) Tomato; (2) Bean and (3) Rice. The main pests concerned were the stem borer of rice, the red spider mite for Tomato and the pod borer for Bean.

Tomato

Comparative field trials with various acaricides to control the Red Spider mite.

533. Among the pest of Tomato (*Lycopersicum esculentum*) the Red Spider mite, *Tetranychus evansi* (Pritchard & Baker) is of great importance.

534. An experiment comprising 10 acaricides in common use in Mauritius was carried out at the Belle Isle Estate with the view to assess the effectiveness of these pesticides.

Layout

535. The plots were comprised in 4-blocks, each composed of 10 treatments and a check plot distributed at random.

<i>Chemical</i>			<i>Rate of Application</i>
1. Morestan	...	$\frac{1}{2}$ gm/litre	225 gm a.i./acre
2. Morocide	...	2 gm/litre	900 gm a.i./acre
3. Kelthane	..	2 cc/litre	28 fl. oz a.i./acre
4. Perfekthion	...	2 cc/litre	28
5. Ekaton	...	1 cc/litre	14
6. Thiovit	...	2 gm/litre	14
7. Fac-20	...	1 cc/litre	14
8. Rogor-40	...	2 cc/litre	28
9. Galecron	...	1 cc/litre	14
10. Anthio	...	1 cc/litre	14

Spraying Methods

536. All the acaricides were applied by means of a semi-automatic Nitto Knapsack sprayer Model NSA-2. The volume of spray used was 100 gallons/acre. Sprayings were done at weekly intervals.

Assessment of Results

537. The number of live and dead adults and larvae were counted for 10 leaves taken at random in each plot one week after spraying. The percentage control was calculated according to Abbot's formula:

$$\% \text{ Control} = 100. \frac{X - Y}{X}$$

Where X is the % living in check plot

Where Y is the % living in treated plot

<i>Chemical</i>				<i>% control larvae</i>	<i>% control adults</i>
Fac-20	...	...	...	1	8.2
Kelthane 20% E.C.	...	...	...	10.6	1.2
Perfekthion	...	...	...	1.5	2.0
Ekatin	...	...	...	20.1	50.3
Thiovit 80% W.P.	...	...	...	0.5	8.0
Rogor 40 E.C.	...	...	...	—	5.1
Galecron	..	...	...	70.1	69.7
Morestan	...	...	...	45	78.7
Morocide	...	...	...	24.3	73.2
Anthio	...	...	...	53.8	54.8
Check	...	...	...	—	—

Conclusion

538. From the above results it seems that Morestan, Galecron, Anthio and Morocide afford good control of the adult and larval stages.

539. Another conclusion that can be derived from the above results is that the red spider mite, (*Tetranychus evansi*) has developed resistance to certain insecticides such as Rogor and Kelthane which according to previous results gave 75-100 per cent control. The overuse and abuse of acaricides is a danger which must be made clear in the mind of the planters. A rotational use of acaricides is one of the ways of preventing the development of resistance to those chemicals.

Bean

Control of the Bean stem fly (Melanoagromyza phaseoli) and Pod Borer (Maruca testulalis).

540. A screening trial consisting of 5 insecticides was carried out at Barkly Experimental Station and Nouvelle Decouverte. Insecticides used were: Nogos 50 E.C., Dimecron 50 E.C., Aldrin 48 per cent E.C., Bromex 100 per cent E.C. and Nuvacron 60 E.C.

541. It is unfortunate that the experiment gave no significant results. That was due to the fact that the incidence of the two main pests of bean and other leguminous plants were extremely low (less than 2 per cent).

Rice

542. The only insect of some economic importance at present is the stem borer, *Sesamia calamistis*. It has been observed that attack starts about 5 weeks after transplanting but the incidence is below 3 per cent. Field trials have shown that it can be controlled by one of the following insecticides:

1. Phosphamidon 50 E.C., Monocrotophos 60 E.C. at 1 cc/litre—225 gm. a.i./acre;
2. DDT or BHC at 2 gm/litre—1,000 gm. a.i./acre for mild attack or as a preventive measure.

Other Insect Pests of Rice of minor importance

543. The plant is attacked at all phases of its growth by several insects, namely:

1. *Nymphula depunctalis* Gn. (Pyralidae)
2. *Marasmia trapezalis* Gn. (Pyralidae)
3. *Crambus malacellus* Dup. (Pyralidae)
4. *Pelopidas barbarice* Bdv.—*Borbo borbonica*
5. *Prodenia litura* F.—*Spodoptera litoralis*

but losses are insignificant provided preventive measures are taken. Diptrex 80 per cent at the rate of 300 gm./acre gives good control.

Tea

544. The broad mite or yellow mite, *Hemiptarsonemus latus* is at present the most serious pest of tea. The mite feeds on the lower surface of the two or three first leaves and the bud, causing the discoloration and distortion of the leaves and bud.

545. Severe attacks occurred at Midlands, Crown Land Dick, Dubreuil, Crown Land Diore in May on mature tea. Chlorphenamidine at 5cc/litre (350 gm. a.i./acre) was applied with a Solo Motor Blow with excellent results.

546. In September a slight attack of aphids, *Toxoptera aurantii* and *Sitobion africana* occurred on young tea plants. DDVP gave good control.

Potato

547. A potato field of an extent of 14 arpents at Beau Plan was severely attacked by *Prodenia litura* and *Plusia* sp. The following treatments were tried and the results obtained were comparable:

1. DDVP at the rate of 500 gm. a.i./acre;
2. Dibrom at the rate of 500gm. a.i./acre;
3. Phosphemidon at 250 gm. a.i./acre.

548. As a preventive measure a bait consisting of 5 per cent sod-fluor-silicate was spread along the rows at the rate of 16 lbs/arpent.

Groundnut

549. The incidence of *Nacoleia praeteritalis* on groundnut was highest in the North, especially in the Souvenir region. A field of about 15 acres would have been severely damaged if necessary control measures had not been taken in time. Phosdrin at 50 cc/litre (300 cc.a.i./acre) using a Solo Motor Blow followed by an application of Dibrom at the same rate after 4 days controlled the pest effectively.

Bean

550. A bean plantation of the extent of 42 arpents, situated at Antoinette, Rivière du Rempart, was severely defoliated by the climbing cutworm, *Plusia orichalcea*, in May. Approximately 90 per cent of the plants were attacked. Application of DDVP at the rate of 500 gm. a.i./acre gave excellent results.

Lettuce

551. A severe attack of Lettuce by *Thrips tabaci* was recorded in Le Reduit region in September.

552. DDVP at the rate of 2 cc/litre completely cleared the crop from this pest.

553. This is the first record of this insect on lettuce.

MISCELLANEOUS

Control of Ticks

554. During the year 60 cargoes of live cattle, mainly from Madagascar, goats and sheep from Australia and Madagascar, have been sprayed with BHC to prevent the spread and introduction of ticks.

Fumigation

555. 95 lots of second hand jute/aloe bags totalising 1,405,400 for export to Madagascar were fumigated with a fogging solution containing 1.5 per cent Lindane and 0.25 per cent Pyrethrins.

Dusting of Granary

556. The Granary has been dusted with Malathion on the request of the Officer-in-Charge of the Granary on six occasions.

XX. Chemistry Division

FEEDSTUFFS, FEED TRIALS AND FODDER

557. The analysis of the ingredients to be blended into animal feeds was carried out so that the mixing of the ingredients could be done in correct proportion. The prepared feeds were also checked for their moisture, protein and fibre contents.

558. At the request of the UNDP Milk and Beef Project, about 100 samples of feeds and 250 samples each of dung and urine were analysed in connection with feeding trials and digestibility trials on scum. The nitrogen taken in and that excreted were determined to establish the nitrogen balance for feeds containing scum.

559. Grasses and fodder of various varieties were received at different periods of the year from the Agronomist for analysis. About 50 samples were examined for dry matter, protein and fibre. Of these was a strain of herbe bourrique, collected at Volmar, which contained between 15 and 20 per cent protein (on dry matter). The normal level of protein in herbe bourrique is about 10 per cent.

560. The stem, leaves and pods of Bois Noir gave on analysis the following:

			<i>Dry Matter</i>	<i>Protein % DM</i>	<i>Fibre % DM</i>	<i>Ether Extract % DM</i>
Stem	...	...	56.2	11.6	40	1.4
Leaves	...	...	70.4	23.5	24.3	2.4
Pods (green)	...	...	74.0	32.8	38.9	0.6

GROUNDNUTS

561. A rapid routine method was being developed for the determination of the oil content of groundnuts. The method consists in the incorporation of an inert filter-aid like Kieselghur to the sample, the aim being to reduce the time of extraction of the oil from the broken cells of the nuts. A few more details are still required in order to complete the tabulation of the results.

WATER

562. At the request of the Ministry of Works and the Agricultural Engineer, water samples were analysed for salinity and hardness.

563. The water from 5 ponds of Palmar Breeding Station were analysed in October for salinity. The season was then very dry. As can be seen from the results the salinity of certain ponds was found to be very high.

				<i>Solid Chloride grams/litre</i>
Puits des Hollandais (water pumped in reservoir) ...				1.2
Mare No. 1 (Poisson)	...	...	...	4.2
Mare No. 2 (Gouramier)	...	...	...	2.3
Mare No. 3	...	...	...	45.0
Mare No. 4	...	...	...	18.0

GINGER

564. Ginger planted at Plaisance was analysed after two years growth. The ginger was planted in December, 1967. Samples were taken every fortnight during August and September, 1969. The fingers produced during each year's growth were analysed separately for dry matter, fibre and ash.

<i>Month</i>			<i>Date</i>	<i>Age of Crop</i>	<i>DM</i>	<i>Fibre % DM</i>	<i>Ash % DM</i>
August	...	...	6	1 yr. old	26	4.2	3.4
do	...	...		2 yr. old	26	4.2	3.6
do	...	...	21	1 yr. old	22	6	5
do	...	...		2 yr. old	17	5	8
September		...	9	1 yr. old	15	5	5
do	...	...		2 yr. old	25	8	7

SOIL

565. Soil moisture was determined on about 200 samples at the request of the Engineering Division.

566. The analysis of soil sampled from the fields of small planters at the time of replanting was carried out to determine the pH and exchangeable potash and phosphate. From the information obtained, adequate advice relative to fertilizer treatment could be given to the planters. The results of samples from 6 localities are tabulated.

			<i>pH</i>	<i>P₂O₅ ppm</i>	<i>K₂O ppm</i>
Petit Raffray	...	...	7.8	44	10
Eau Coulée	...	...	4.7	100	175
La Chaumière	...	...	7.2	25	33
La Marie	...	...	5.9	100	26
Borstal (GRNW)	...	...	7.9	Traces	740
Le Morne	...	...	6.7	Nil	245

567. The fields to be put under tea were sampled weekly for pH determination. About 400 samples were taken. The pH was found to lie between 5.4 and 5.8. Field No. 2, close to the Office at Wooton, which was under Malayan Jat for 19 years was sampled in September. The pH was found to be as low as 4.5.

MILK

568. The analysis of milk in connection with UNDP Milk and Beef Project was carried out. 500 samples were analysed for specific gravity, acidity and fat. About 50 samples were also analysed for calcium, protein and citric acid.

PESTICIDES

569. Various methods have been experimented upon for the analysis of pesticide residues in foodcrops. Colorimetric methods as well as those dealing with thin layer chromatography were tried. Those best suited to our particular laboratory conditions were selected, as far as chlorinated pesticides are concerned. Methods dealing with organophosphorus pesticides have also been tried, but no significant progress was made.

570. A preliminary survey was made to check the level of Aldrin and DDT on beans collected from vegetable markets visited between September and October.

<i>Date</i>	<i>Place</i>	<i>Level ppm DDT nil</i>	<i>Aldrin</i>
8/ 9	... Quatre Bornes	nil	nil
9/ 9	... Vacoas	2	..
11/ 9	... Curepipe	nil	..
19/ 9	... Camp de Masque	0.2	..
19/ 9	... Flacq	nil	Trace
23/ 9	... Rose Belle	nil	nil
23/ 9	... Mahebourg	0.6	..
25/ 9	... Port Louis	nil	..
2/10	... Rose Hill	2	..
6/10	... Curepipe	0.6	..
9/10	... Rose Belle	0.9	..
20/10	... Riviere du Rempart	nil	..
27/10	... Flacq	nil	..
29/10	... Mahebourg	Trace	..

571. It should be noted that the accepted tolerance for DDT residues on beans is 7 ppm. It appears therefore that residue levels found so far are well within the safety margin. It is stressed that the above figures are the result of a tentative survey.

MISCELLANEOUS

572. Various types of products connected with Agriculture were investigated. These include compost, manure, fertilizers, dipping, lime, silage, molasses and vegetable oil.

XXI. Engineering Division

CENTRAL WORKSHOP

573. The servicing, repair and maintenance of all departmental vehicles, tractors and machinery were carried out at the Central Workshop. Complete service records were kept. The following servicing and repairs were carried out:

Vehicles	...	...	...	526
Tractors	...	...	...	145
Lawn Mowers	...	...	...	73
Sprayers	...	...	...	30
Trailers	...	...	...	20
Pumps	...	...	...	8
Agricultural Implements			..	10
Other Machinery	...	...	...	18
Other Minor Works	...	...	...	14
TOTAL				844

574. The following equipments and accessories were designed, fabricated, assembled or installed:

- (i) One canopy for lorry;
- (ii) Water tanks for Barkly Experiment Station and Tea Division;
- (iii) Gates for Animal Quarantine Station, Roche Bois;
- (iv) Brackets for placing of insulation boards in Insectarium, Reduit;
- (v) A rice milling plant.

BUILDINGS

- (i) Insulation of two rooms of the Insectarium;
- (ii) Extension to Central Workshop completed;
- (iii) Construction of partition walls in F.A.O. office;
- (iv) Construction of a concrete developing chamber in F.A.O. drawing office;
- (v) Minor repairs to pipes in the Fumigation Plant, Fort George;
- (vi) Works on construction of 2 greenhouses and extension to Barkly Seed Store started.

575. The following were constructed:

- (i) 5 Telescopic Stands for F.A.O.;
- (ii) Shutterings of windows for Milk Centres;
- (iii) 2 special doors for Insectarium;
- (iv) 35 benches, chairs, cupboards, etc.;
- (v) Windows for Extension Central Workshop and Insectarium.

576. Technical advice was given to other Divisions and members of the public on location of underground water. Water samples from wells were sent to chemist for determination of Sodium Absorption Ratio. Lectures on Farm Mechanisation and Building Construction were delivered at the School of Agriculture of the University of Mauritius.

LIVESTOCK FEED FACTORY

Manufacture of Animal Foodstuffs

577. 4,708.7 tons of different mixtures were manufactured during the year from such products as: Wheat Bran, Maize Flour, Groundnut Cake, Cotton Seed Cake, Pollard, Meat Meal, Fish Meal, Oats, Lucerne Meal, Bone Meal, Cod Liver Oil, Skimmed Milk Powder, Molasses, Bagasse, Wheaten Flour, Rice Flour, Broad Beans Flour, Scums, Trelocovite, Treloco Bran Nitrofurazone, Treloco Bran Nitrofurans, Amprolmix UK, Aurofac 20, Adramin, Chick Mix, Ground Sand, Salt, Copra, High Protein Mixture, Raw Sugar, Lentils Flour, Soya Flour and Sorghum Flour.

578. 18 different kinds of foodstuffs are now offered for sale, namely: Chick Feed, Poultry Feed, Cow Feed Loose, Cow Feed Cubed, Bull Feed, Calf Feed, New Cattle Feed, Pig Grower Feed, Pig Starter Feed, Creep Feed, Horse Feed, Special Horse Feed, Scums Ration, Chick Mix, Cheap Cow Feed, Control Ration, Mineral Mixture, Rabbit Feed.

579. From the above mentioned mixtures, 4,892 tons were sold at Livestock Feed Factory and Extension Shop, Rose Hill during the year. In addition special kinds of feeds are being manufactured for experiments of the Livestock Breeding Station of Curepipe viz. two kinds of Control Ration feed with Raw Sugar and two kinds of Scums Ration Feed.

XXII. The Fisheries Division

580. The duties of the branch are to enforce the provisions of the law regulating fisheries in territorial waters, and to study, recommend and implement such new measures as may be necessary for the better protection of fish. It also collects statistical data, takes all steps necessary to improve the efficiency of the industry and the welfare of the fishing community.

581. The staff shortage reported for 1968 continued in 1969, although promotions within the division improved matters at the higher echelons. The number of vacancies at the end of the year was:

Clerk and Storekeeper	...	...	1
Head Guard	...	...	1
Guards	...	...	14
TOTAL	...	...	16

582. A reorganisation of the fisheries protection service was effected during the year in order to improve its efficiency. Flying squads operations from up country were discontinued, and two control posts were established at Poudre d'Or and Grand River South East where the maximum available number of Fisheries Guards were posted. These posts were then the local points of all patrols in the most vulnerable and heavily fished lagoons.

583. The tendency of poachers to fish in large groups and to use force to evade arrest continued, but a larger number of arrests were made than in the preceding two years, and the amount of fines recovered was the highest since 1966 which was a record year, immediately following the operation of flying squads. In particular, the number of illegal nets seized was unusually high.

STATISTICS ON DETECTION OF FRAUD

Year	Cases Prosecuted	Convictions	Total Contra- ventions	Illegal Nets	Explosives	Total Fines Rs.
1965	... 89	112	140	36	9	3,911
1966	... 270	306	303	98	31	8,057
1967	... 171	197	218	72	16	5,075
1968	... 112	233	200	66	7	4,747
1969	... 162	236	257	96	11	7,120

SEA FISHING

584. For the first year since 1963, a marked increase of catch was noted. This increase is particularly in the lethrinids, *Siganus spp.*, *Scranidae* and *Naso spp.*, and other unclassified species of fish, and, combined with a drop in the percentage catch of large (seine) nets, indicates an increase in the catch of lines and basket traps. A large part of the increase can be attributed to good weather during the year, which allowed a more intensive exploitation of the shelf fishery outside the lagoons, as well as to a greater interest among the fishing population of this offshore type of fishing. Most of this increased fishing was conducted from pirogues normally used inside the lagoons, rather than in a larger number of motorized pinnaces.

585. The increase in the catch of crayfish to the level of 1965 was due to a change in the mode of fishing from basket traps set on the reefs, to the use of gill nets on the reefs in one area and generally to large scale fishing by divers. This appears to have resulted in a marked reduction of the main species, *Panulirus penicillatus* from its preferred habitat in the marginal areas outside the barrier reef.

STATISTICS ON FISH LANDINGS (METRIC TONS)

	1964	1965	1966	1968	1969
1st Quarter ...	296.0	284.0	240.0	201.965	355.788
2nd Quarter ...	348.0	299.0	346.0	270.958	361.634
3rd Quarter ...	204.0	214.0	227.0	151.126	256.115
4th Quarter ...	297.0	322.0	316.0	316.448	376.452
	1,145.0	1,119.0	1,129.0	940.497	1,349.989

Total catch by net fisheries

Year	Catch (metric tons)	% of Total Controlled Catch
1964	327	28.5
1965	300	26.8
1966	282	24.9
1968	238	26.3
1969	297	22.05

Catch in tons (Average)

	1951-55	1956-60	1961-65	1966	1968	1969
Nets ...	410	363	370	282	238	297
Basket traps ...	715	628	474	403	338	471
Lines ...	247	275	216	243	224	350
Octopii ...	238	219	196	185	125	208
Grayfish ...	27	28	21	12	11	18
Harpoon fish ...	—	7	11	4	3	6
TOTAL ...	1,637	1,520	1,288	1,129	949	1,350

The distribution of fish species was as follows:

Species	1968 Kgs.	1969 Kgs.
Capitaine, <i>Lethrinus nebulosus</i> ...	28,069	39,613
Dame Berry, <i>Lethrinus mahesa</i> ...	39,170	55,088
Battardet, <i>Lethrinus harak</i> ...	17,356	32,738
Caya, <i>Lethrinus reticulatus</i> ...	16,558	18,595
Cordonniers, <i>Siganus spp.</i> ...	179,341	260,591
Rougets, <i>Mullus</i> ...	36,260	52,172
Mullets, <i>Mugiloidae</i> ...	23,706	18,691
Vielles, <i>Seranidae</i> ...	49,046	67,647
Licornes, <i>Naso spp.</i> ...	124,647	151,685
Octopii ...	126,142	207,739
Crayfish, <i>Panulirus spp.</i> ...	11,480	18,016
Other species of fish ...	288,722	427,414
TOTAL ...	940,497	1,340,989

VISITS OF FISHERIES DELEGATIONS

586. In August, a delegation led by the Deputy Minister of Fisheries of the U.S.S.R., Mr. S. Studenetsky, assisted by a team consisting of a Fisheries Expert, an Economist, an Engineer and an Interpreter came to Mauritius, and at the issue of their visit, signed a Protocol Agreement on Fisheries Co-operation between Mauritius and the U.S.S.R.

587. In October, the Regional Fisheries Attaché for Africa, United States Embassy, Abidjan, Ivory Coast, Mr. Salvatore di Palma, visited Mauritius and had talks with officials of the Ministry on the possibility of assistance to Fisheries Research by the United States A.I.D.

OFFSHORE FISHING COMPANIES

588. The Mauritius Fishing Development Company landed with its ships, 'La Perle II' and "La Sirene", 622 tons of iced fish which were sold on the local market, as well as 164,763 kgs of fish salted on St. Brandon. A drop in the landings of iced fish in Mauritius of 101 tons from last year was therefore registered, which may have been due to the passage of a number of cyclones on the banks during the year, which reduced the number of fishing days, as well as to a strike of fishermen on St. Brandon.

589. The "Stella Maru" operated by the Limuria Fishing Company also landed less fish than the previous year, a total of 584,312 kg of frozen fish being produced.

590. Despite this drop in production, sales of offshore fish at the beginning of the year were slow, owing largely to competition due to the increased catch from the lagoons. Fish surpluses were however sold in the winter months when the local catch drops.

591. A new company with joint Mauritian—Japanese capital was formed, the "Mauritius Tuna Fishing Development Company", which purchased a longliner from Japan, the "Clavis Maru No. 1", which left on its first fishing cruise.

592. Foreign operated longline fleets made a total of 325 cruises from Port Louis, landing 24,731,000 kg of fish which was later re-exported. This figure represents a substantial drop on the previous years, despite a higher fishing effort, and provides contributory evidence that the tuna stocks of the Western Indian Ocean are being grossly overfished.

593. A total of 150,790 kg. of salted fish were exported from Rodrigues to Mauritius. This showed a slight increase on the previous year.

594. Recruitment was started for 6 Fisheries Guards for Rodrigues in order to supplement the activities of the Police who have the responsibility of the control of illegal fishing there. These Guards, once recruited, are to follow a course of training in Mauritius, after which they are to be seconded to the Police in Rodrigues.

XXIII. Rodrigues

GENERAL

595. Agriculturally, conditions were adverse to plantations during the two first months of 1969, causing the main season maize crop to be delayed.

596. Rains fell in March and farmers hesitated when they had to choose between maize and onion for their best land. However, neither crop reached desirable maturity as drought prevailed from August to December.

597. Onion production, which had already decreased to 620 tons in 1968, was only 520 tons.

598. Relief workers who had been engaged since 1967 were kept until the end of June to alleviate hardship to the people. The ill effects of the cyclones, *Carmen* in 1967, *Monique* and *Henriette* in 1968, have persisted during 1969.

CLIMATE

599. Inches of Rain, Meteorological station, Rodrigues.

Month	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
August ...	2.64	2.27	1.15	1.61	2.78	3.49	3.09	1.93	2.68	2.56
September ...	3.08	1.49	1.13	1.24	2.97	0.79	0.79	0.97	2.35	0.98
October ...	1.15	0.48	4.44	1.92	1.54	2.34	1.84	1.67	0.95	0.56
November ...	0.73	2.20	0.68	0.92	0.43	0.91	2.71	0.23	1.01	0.83
TOTAL ...	7.60	6.44	7.40	5.69	7.72	7.53	8.43	4.80	6.99	4.93

600. As illustrated, the rainfall figures for 1969 are among the lowest for the past years. Consequently, the crops planted in March, received a well-distributed rainfall and were brought near maturity stage, but when it suddenly decreased in mid-July the yields were severely affected.

AGRICULTURAL DIVISION

601. The island is divided into thirteen Agricultural Districts and two Assistant Agricultural Officers are attached to them. Each district has one or sometimes two Overseers with a District Headquarters, Demonstration Plot, or Breeding Centre. The Development Works in the district are supervised by the Overseer and controlled by the Assistant Agricultural Officer. Each district Headquarters has a small clerical and stores staff, adequate to cope with the district activities. At Citronnelle, in the centre of the island, are the main Headquarters with an Executive Officer and his staff for the clerical work and also an Assistant Stores Officer and his staff who control the issue of divisional stores and indent them from Mauritius. Another Executive Officer attached to the District Administration performs regular inspection of the stores and offices of the Division as an Internal Control Officer. There is an Agricultural Training Farm at Marechal whose Principal is a Father of the Holy Ghost Order. Also at Citronelle is a Branch of the Central Marine Workshop. The Citronelle staff maintains and repairs the numerous water pumping stations and all divisional tractors, jeeps, generators etc.

602. The following table compares the total exports as from 1960.

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Cattle ...	615	720	1,076	579	616	631	402	288	423	187
Pigs ...	2,908	2,258	2,858	3,542	4,656	4,576	4,428	5,141	4,497	4,231
Sheep & Goat ...	6,133	5,654	5,963	5,745	5,056	4,324	4,649	4,230	2,887	3,689
Poultry crates ...	728	650	636	706	550	861	1,379	1,302	638	951
Onions &										
Garlic (tons) ...	258	150	51½	286	578	524	755	670	644	542.10
Acacia (tons) ...	235	75	38	130	81	79	14	10	—	—
Salt Fish &										
Octopus ...	4,187	3,540	4,370	4,105	4,287	3,847	3,873	4,591	3,130	3,633
VALUES IN RS...	1,497,570	1,247,580	1,315,820	1,538,314	1,720,775	1,692,734	1,830,428	1,922,638	1,520,947	1,564,441

603. The total value of exports for 1969 gives an idea how hard the conditions have been for the farmers. However, it appears that the ill effects of cyclones, that have previously hit the island, are being counter-balanced and that improvement is expected provided good seasons prevail in 1970. The number of cattle exported still decreased due to losses incurred; farmers tend to replenish their stocks. Less pigs and onions were exported because of drought; on the other side more sheep, goats, salt-fish and poultry were shipped.

DEVELOPMENT PROGRAMME

604. Due to damage caused by cyclones, a considerable amount of money intended for the development programme for the year 1969 was spent to sustain the population by means of Relief Works, and the following were accomplished:

(a) By means of Relief Workers

15 miles of new roads were opened and 53 miles of old ones were repaired; 81 new unit farms were completely terraced and canalised. 109 acres were planted with Pangola. 115 acres were afforested; 6 reservoir-sites were prepared and 20,000 feet of canals were dug. 175 acres of pastures were needed and 1,621 acres of land were cleaned to help farmers to grow food.

(b) By means of Contract:

14 Dairy Farms were prepared and paddocked i.e., 14 acres of land were terraced and canalised, 22 acres were planted with Pangola for leavers of Agricultural Training Farm. Contract works started on about 250 other farms 176 of which were completed.

WATER SUPPLIES

605. The problem of farm water supplies is being answered slowly as the new development programme is being implemented. There are now 12 pumps operating in different districts of the island and at least 3 more have been ordered. Bigger pumps are being ordered in order to cope with the problems of water supplies.

606. Two dams and 2 storage tanks have been completed and works are going on satisfactorily on 5 others. 12,597 ft. of galvanised pipes have been laid and 56 taps installed, bringing the totals to 515,164 ft. of pipes and 1,621 taps.

ANIMAL STATISTICS

Cattle

	<i>Adults</i>		<i>Young</i>		<i>Total</i>
	<i>males</i>	<i>females</i>	<i>males</i>	<i>females</i>	
Oyster Bay ...	1	42	4	25	72
Malabar ...	1	43	1	10	55
Le Chou ...	2	26	5	15	48
St. Gabriel ...	1	49	13	27	90
Marechal ...	1	46	6	15	68
Bay Topaz ...	1	37	11	11	60
Batastrand ...	1	17	3	12	33
Demonstration Plot ...	13	37	11	53	114
TOTAL ...	21	297	54	168	540

Station		Pigs				Total	
		Adults		Young			
		male	female	male	female		
Oyster Bay	...	2	13	5	3	23	
Le Chou	...	2	11	3	1	17	
St. Gabriel	...	2	11	10	5	28	
Marechal	...	4	10	12	10	36	
Baie Topaze	...	1	16	16	10	43	
Demonstration Plots	...	8	26	17	21	72	
TOTAL		...	19	87	63	50	219

PRODUCTION AND MARKETING

Statistics of Exports for the year 1969

Date	Cattle	Pigs	Sheep and Goats	Crate of fowls	Bags of Onions	Bales of salt fish and Octopus	Bags Garlic
18. 1.69	...	—	47	11	23	—	72
3. 2.69	...	8	226	262	68	—	207
25. 2.69	...	—	—	—	—	—	445
27. 3.69	...	—	268	384	79	—	281
17. 4.69	...	—	361	342	46	—	330
28. 6.69	...	16	536	358	104	—	332
3. 8.69	...	26	438	315	46	—	332
13. 8.69	...	40	169	96	16	—	186
2.10.69	...	56	692	477	123	3,728	624
18.11.69	...	17	772	526	169	6,395	631
2.12.69	...	10	—	116	34	—	35
13.12.69	...	—	7	255	105	280	155
21.12.69	...	14	715	547	138	—	85
TOTAL	...	187	4,231	3,689	951	10,405	3,633

The approximate value of the total exports was:

187 cattle at Rs 275 per head	...	...	Rs 51,425
4,231 pigs at Rs 90 per head	...	...	380,790
3,689 sheep and goats at Rs 40 per head	...	...	147,560
951 crates of fowls at Rs 174 per crate	...	...	165,874
520 tons of onions at Rs 550 per ton	...	...	286,137
3,633 bales of salt fish and Octopus at Rs 140 per bale	...	...	508,620
2,185 tons of Garlic at Rs 1,100 per ton	...	...	24,035
TOTAL	...	...	1,564,441

607. There were 110 farrowings producing 826 piglets i.e. 7.5 per litter, with a percentage survival of 77.7 per cent. 693 piglets were sold to farmers.

Station	Sheep				
	Adults		Young		Total
	males	females	males	females	
Combranie Island ...	3	14	3	7	27
Crab Island ...	7	61	25	28	121
TOTAL ...	10	75	28	35	148

76 lambs were born and 23 rams were sold to farmers as breeding stocks. The percentage survival to weaning age was : 77.6 per cent

XXIII. UNDP/SF/FAO—Dairy and Meat Project

608. The U.N.D.P. (S.F.)—F.A.O. Project "Development of Milk Production, Beef and Dairy Industries", which was launched last year, started to identify the characteristics of the livestock activities through the experts already appointed. The Ruminant Nutrition expert, Mr. D. G. Miles, who had been working since July 1968 on the feeding value and the digestibility of sugar-cane scums, carried out his investigations; he submitted his draft report and recommendations before leaving the country on 26th June. The Project Manager and Animal Production Expert, Dr. J. Hardouin, and the Dairy Expert, Mr. R. Tentoni, submitted a programme of work and first suggestions to reorientate the objectives of the Project in order to meet the apparent requirements of the country.

609. An F.A.O. consultant, Mr. M. Fenn, came to the country from 7th to 29th July to survey the future development of livestock in relation to meat marketing and slaughterhouses facilities.

610. Another F.A.O. consultant, Dr. H. H. Roth, visited Mauritius from 22nd August to 2nd September, investigating the animal health situation and deer farming possibilities.

611. The team of experts already appointed undertook surveys on milk production, milk characteristics, milk marketing, as well as calf and steer growth. Discussions started for the creation of pastures and fodder cultivation in the High Plateaux (Curepipe—La Brasserie) from presently useless shrub lands. Proposals were also made for various pilot schemes, with the objective of collecting data and testing on small scale what would be implemented on national scale later. Dairy cattle settlement schemes, dairy cattle co-operative schemes and a metayage scheme were envisaged, all on an experimental basis.

XXIV. UNPD/SF/FAO Fisheries Development Project

612. The plan of operation of the Fisheries Development Project was signed, and the Project became operational on 14th April. The Masterfisherman assigned to the project by F.A.O., Captain G. Gudmansson, arrived in Mauritius on 24th March, 1969, and assumed his duties immediately.

613. In April, Mr. Hilmar Kristjohnsson, an F.A.O. Fisheries Expert, arrived from Rome to study some difficulties in connection with the Project. "Investigator" was taken out for three days on fishing trials. Successful sets were made with a lampara net, both in daylight and by night with the use of lights, in front of Black River Bay.

614. Subsequent to the visit of Mr. Kristjohnsson, it was decided that the Mauritius Government would provide a Master for the "Investigator", the qualifications of the F.A.O. Masterfisherman not satisfying the Director of Marine with respect to the Command of the Vessel.

615. Following the sea trials mentioned above, the temporary crew engaged for the "Investigator" was laid off until such time as a Master and a Chief Engineer should be appointed.

616. On 17th June, 1969, Mr. K. Cox arrived in Mauritius and took over the control of the Project as Project Manager.

617. The Marketing Consultant of the Project, Dr. C. Gonzales-Manero released in September a report entitled "*Preliminary Report on the Marketing of Fish in Mauritius*".

APPENDICES

A. Staff

(as at 31st December, 1969)

<i>Appointment</i>	<i>Name</i>	<i>Remarks</i>
Chief Agricultural Officer ...	A. Mulder ...	On contract
Principal Agricultural Officers (2)	B. D. Roy, B.Sc. (Wales) Diploma Agric. (Mtius) K. Lutchmeenaraidoo, B.Sc. Agric. (Reading) Diploma Agric. (Mtius)	

ADMINISTRATIVE AND FINANCE DIVISIONS

Chief Finance Officer ...	G. Dhookit ...	Acting
Chief Executive Officer ...	J. L. Melotte ...	

In addition there are :—

3 Senior Executive Officers		
6 Executive Officers ...	4 vacancies	
2 Higher Clerical Officers		
15 Clerical Officers		
1 Senior Stores Officer ...	} Posted to the Agri- cultural Services and paid out of M/Finance Vote	
1 Assistant Stores Officer ...		
3 Stores Assistants ...	1 vacancy	
2 Confidential Assistants		
11 Typist / Stenographers ...	3 vacancies	
1 Librarian ...	vacant	

AGRICULTURAL AND EXTENSION DIVISIONS

Senior Agricultural Officers (3)		3 vacancies
Hydrometeorologist ...	K. Venkatasamy, B.Sc. (Honours) Physics (Manchester)	
Agronomists (4) ...	T. Narain, B.Sc. Agric. (Reading) Diploma Agric. (Mtius) L.R: Brunet, B.Sc. Agric. (Reading) Diploma Agric. (Mtius) P. Ramdin, B.Sc. (Honours) Agric. and Animal Hus- bandry (Uttar Pradesh) A.L. Owadally, B.Sc. (Ho- nours) Agric. Botany (Wales) Ph.D. Agric. (Nottingham), Diploma Agric. (Mtius)	

<i>Appointment</i>	<i>Name</i>	<i>Remarks</i>
Horticulturist ...	M. Z. Peerun, B Sc. General. B.Sc. (Honours) Agric. Botany (Wales)	
Senior Agricultural Superintendent	L. Moorlee, Diploma Agric. (Mtius)	
Agricultural Superintendents (2)		Vacant
Agricultural Officers (13) ...	I. Fakim, Diploma Agric. (Mtius) M. Sooltangos, Diploma Agric. (Mtius) H. Choolun, Diploma Agric. (Mtius) S. Bagwant D. Reetoo B. Nundloll S. Y. Elahee Doomun S. P. Vythilingum, Diploma Agric. (Mtius) A.A.M. Osman, Diploma Agric. (Mtius) I.H. Sassa, Diploma Agric. (Mtius) J.C. Honglin, Diploma Agric. (Mtius)	2 Vacancies

In addition there are :—

17 Assistant Agricultural Officers	7 Vacancies
16 Overseers ...	3 Vacancies
8 Agricultural Assistants	5 Vacancies
8 Agricultural Cadets ...	5 Vacancies

AGRICULTURAL CHEMISTRY DIVISION

Chemist ...	S. Belcourt, B.Sc. Agric. Chem. (Wales), Post Graduate Diploma Agric. Science (Wales) Diploma Agric. (Mtius)
Assistant Chemist (2) ...	J. E. Pablot, B.Sc. Physics and Chem. (London) J. P. J. Deville, B.Sc. (Honours) Biochemistry & Soil Science (Wales) Diploma Agric. (Mtius)

In addition there are :—

3 Scientific Assistants ...	One is on study leave
2 Agricultural Cadets	

PLANT PATHOLOGY DIVISION

<i>Appointment</i>	<i>Name</i>	<i>Remarks</i>
Plant Pathologist	... M. A. Peerally, B.Sc. Botany (Hyderabad), M.Sc. Botany (Hyderabad), Ph.D. Plant Pathology (Manchester)	
Assistant Plant Pathologist	(2) P. J. S. Félix, Diploma Agric. (Mtius)	1 Vacancy

In addition there are :—

4 Quarantine Inspectors

2 Scientific Assistants

1 Agricultural Cadet

ARBITRATION AND CONTROL BOARD DIVISION

Registrar	... P. J. Galea, Diploma Agric. (Mtius)	
Assistant Registrar and Chief Chemist	... A. A. Aumeerally, B.S. (Sugar Engineering) & B.S. (Chemical Engineering (Louisiana S.U., U.S.A.), Diploma Agric. (Mtius)	
Accountant	... P. J. Gnany, A.A.C.C.A.	
Senior Assistant Chemist	... I. D. Nawoor, B.Sc. (General) (Wales), B.Sc. (Honours) Chemistry (Wales)	
Assistant Chemist	... R. Telemaque Diploma Agric. (Mtius)	

In addition there are :—

2 Investigation Officers and
Weighbridge Inspectors

3 Senior Test Chemists ... 1 Vacancy

25 Test Chemists

1 Test Chemist for crop
period

ENGINEERING DIVISION

<i>Appointment</i>	<i>Name</i>	<i>Remarks</i>
Agricultural Engineers (2)	L. Li Pi Shan, B.Sc. Agric. Engineering (Sask) Diploma Agric. (Mtius)	
	A. R. Satar, B.Sc. Agric. Engineering (Israël) Diploma Agric. (Mtius)	
Assistant Agricultural Engineer ...	M. Morad, Diploma Agric. (Mtius)	

In addition there are :—

1 Scientific Assistant ...	Vacant
1 Supervisor, Livestock Feed Factory	
1 Accounts Clerk	
1 Temporary Clerk, Extension Shop	
2 Agricultural Cadets	

ENTOMOLOGY DIVISION

Entomologist ...	M. J. L. Monty, B.Sc. (Honours) Entomology (Queensland), Diploma Agric. (Mtius)
Assistant Entomologist ...	A. Joomye, B.Sc. (Hon- ours) Zoology & Botany (East Africa)

In addition there are :—

2 Scientific Assistants	
1 Agricultural Cadet ...	vacant

DIVISION OF VETERINARY SERVICES

Senior Veterinary Officer ...		vacant
Veterinary Officers (2) ...	M.F. Mosaheb, B.Sc. (Vet.) B.Sc. (Animal Husbandry) (Punjab)	
	R.C.S. Fokeer, B.V.Sc. and A.H. (Honours) (Bombay)	
Assistant Veterinary Officer		vacant
Animal Husbandry Officer	J.A.C. Delaitre, B. Agric. and A.H. (New Zealand)	

<i>Appointment</i>	<i>Name</i>	<i>Remarks</i>
Laboratory Technologist ...	L.H.R. Maurice, Diploma Agric. (Mtius)	
Senior Stock Inspectors (2)	L.R. Pascal C.A. Adelson	
Agricultural Officers (2) ...	A. Ferriere Y. Amjaud, Diploma Agric. (Mtius)	

In addition there are :—

2 Scientific Assistants ...	1 vacancy
9 Stock Inspectors ..	3 vacancies
21 Livestock Assistants ...	4 vacancies
2 Overseers	
3 Agricultural Assistants ...	1 vacancy
2 Agricultural Cadets	

TEA DIVISION

Senior Agricultural officer	S. Moutia B.Sc. (Hort) (London) Diploma (Agric. Economics) (Oxford) D. Phil (Gau- bati) City & Guilds (Sugar Manufacture) First Class Cert. (Lon- don) Diploma Agric. (Mtius)	
Agronomists (2) ...		2 vacancies
Agricultural Officers (3) ...	C. S. Amide Diploma Agric. (Mauritius) F. Monneron S. Moorroogan	

In addition there are :—

9 Assistant Agricultural Officers	6 vacancies
15 Overseers ...	6 vacancies
2 Agricultural Assistants	
6 Agricultural Cadets ...	1 vacancy

FISHERIES DIVISION

Fisheries Officer ...	J. D. Ardill, B.Sc. Zoo- logy (St. Andrews), M.Sc. Oceanography (Canada)	
Second Class Engineer ...	R. Etienne	
Chief Inspector ...	M. A. E. Cabon	

In addition there are :—

6 Inspectors	
16 Head Guards ...	1 vacancy
36 Guards ...	15 vacancies
1 Clerk and Storekeeper	vacant
1 Statistical Clerk ...	vacant

B. Composition of the Principal Boards and Committees**(i) BOARD OF AGRICULTURE, FISHERIES AND NATURAL RESOURCES***Ex-Officio Members*The Chief Agricultural Officer—*Chairman*The Conservator of Forests—*Vice Chairman*

The Deputy Financial Secretary

Members of the Legislative Assembly

The Honourable M. Foogooa

The Honourable G. Teeluck

The Honourable Gaëtan de Chazal

The Honourable Raouf Bundhun

Representatives of Millers

Mr. Robert Antoine

Mr. Serge Dupont de R. de St. Antoine

Representatives of Planters

Mr. Roland Ducler des Rauches

Mr. Nundlall Gunpath

Representatives of the Chamber of Agriculture

Mr. L. H. Garthwaite

The Board met once during the year.

(ii) AGRICULTURAL COLLEGE ADVISORY BOARDThe Chief Agricultural Officer—*Chairman*

The Honourable R. Balgobin

Mrs. B. Jhowry

Dr. P. O. Wiehé, C.B.E.

Sir André Nairac, C.B.E., Q.C.

Mr. Serge Dupont de R. de St. Antoine

Mr. Robert Antoine

Mr. Auguste Harel

Mr. R. Noël

The Board held two meetings during the year.

(iii) CANE PLANTERS AND MILLERS ARBITRATION AND CONTROL BOARDMr. L. E. Venchard—*Chairman**Representatives of Millers*

Mr. Hervé Koenig

Mr. Philippe d'Arifat

Representatives of Large Planters

Mr. Roland Ducler des Rauches

Mr. Baalkrishna Ramphul

Representatives of Small Planters

Mr. Goburdhun Ramnarain

Mr. Nunkeesor Saddul

The Board held 21 meetings during the year.

(iv) TOBACCO BOARD

The Chief Agricultural Officer or a Principal Agricultural Officer—

Chairman

The Commissioner of Excise—*Vice Chairman*

The Manager, Tobacco Warehouse

The General Manager, British American Tobacco (Mauritius) Ltd., or his Representative

The Managing Director, Amalgamated Tobacco Corporation (Mauritius) Ltd., or his representative

The Manager, The Consolidated Co. Ltd., or his representative

Mr. Harish Balgobin

Mr. Soomaroo Butan

Mr. H. Hanoomansing

Mr. D. Gungadeen

Mr. Anirood Purgass

Mr. A. Georges Rey

Mr. Goolam Raschid Sohawon

The Board held 13 meetings during the year.

(v) LAND SETTLEMENT ADVISORY COMMITTEE

The Chief Agricultural Officer or his representative—*Chairman*

The Senior Agricultural Officer (Extension)

The Registrar of Co-operative Societies

The Hon. K. Gokulsing

Mr. Nundlall Gunpath

The Agricultural Officer of Land Settlement

The Committee held one meeting during the year.

(vi) TEA CONTROL BOARD

Ex-Officio Members

The Principal Agricultural Officer—*Chairman*

The Deputy Financial Secretary

Members appointed by the Minister

Mr. Jean Rey

Mr. L. Ramdin

Mr. P. J. Hannay

Mr. Francis North-Coombes

Mr. Seeparsad Dassaram

Mr. H. R. K. Aubdool

Mr. V. Govinden, M.B.E.

Mr. D. Gungadeen

The Board held 14 meetings during the year.

(vii) SUGAR PLANTERS' REHABILITATION FUND COMMITTEE

Government Officers

The Chief Agricultural Officer or his representative—*Chairman*

The Registrar of Co-operative Societies or his representative

Representative of the Mauritius Chamber of Agriculture

Mr. Lois Desvaux de Marigny

Representative of the Sugar Cane Planters Association

Mr. S. Gaya

Representative of the Mauritius Cane Growers' Association

Mr. Jacques Lagesse

Representatives of the Mauritius Co-operative Agricultural Federation Ltd.

Mr. Jagdeo Roodurmum

Mr. Soomaroo Butan

The Committee held 17 meetings during the year.

(viii) ADVISORY COMMITTEE ON THE NORTHERN PLAIN IRRIGATION
PILOT PROJECT

The Chief Agricultural Officer or his representative—*Chairman*

The Agricultural Officer in Charge of the Project

Mr. R. Rajaram, F.A.O. Agrarian Structure Expert

Representatives of the Ministry of Works

Mr. J. L. Nairac, Chief Engineer (Water Development)

Mr. J. Gordon-Smith, Hydrologist

*Representative of the Ministry of Housing, Lands and Town
and Country Planning*

Mr. R. Fijac, Divisional Surveyor

Representative of Co-operative Societies

Mr. L. Julien, Registrar of Co-operative Societies

The Committee held 5 meetings during the year.

C. Legislation*Proclamations:*

- No. 4 ... Sale of Canes (Control) Ordinance, 1964—To proclaim the rate of duty/leviable under the Sale of Canes (Control Ordinance), 1964, on the Sugars of the 1968 Crop exported from Mauritius.

Acts:

- No. 26 ... Tobacco Production and Marketing (Amendment) Act, 1969.
No. 38 ... Vanilla Ordinance (Repeal) Act, 1969.
No. 69 ... Weed Killers (Control) Act, 1969.

REGULATIONS

Government Notices:

No. 17	...	Mauritius Agricultural Marketing (Prices and Quantities) (Amendment) Order, 1969.
No. 37	...	Mauritius Agricultural Marketing (Cess) (Amendment) Regulations, 1969.
No. 38	...	Mauritius Agricultural Marketing (Cess) (Amendment) No. 2) Regulations, 1969.
No. 51	...	Mauritius Agricultural Marketing (Standard of quality and Classification) (Amendment) Regulations, 1969.
No. 52	...	Mauritius Agricultural Marketing (Prices and Quantities) (Amendment No. 2) Order, 1969.
No. 62	...	Mauritius Agricultural Marketing (Cess) (Amendment No. 3) Regulations, 1969.
No. 118	...	Mauritius Agricultural Marketing (Controlled Products) Order, 1969.
No. 125	...	Agricultural Chemists (Amendment) Regulations.

D. List of Publications and Contributions to Literature by Officers of the Department of Agriculture during 1969

<i>Name of Author</i>	<i>Title of Paper</i>	<i>Name Volume No., Page-Nos. of periodical in which published</i>
H. G. S. Ramlogun	... The Conversion of Sugarcane Plantations into Tea	Revue Agricole et Sucrière de l'Ile Maurice, Vol. 48 No. 1, pp. 23-26
S. Moutia	... The Ad Hoc Consultations on Tea	Revue Agricole et Sucrière de l'Ile Maurice, Vol. 48 No. 2, pp. 60-62
R. Brunet	... Trends in the Consumption of Fertilizers in Mauritius with reference to Sugarcane	Revue Agricole et Sucrière de l'Ile Maurice, Vol. 48 No. 2, pp. 101-104
B. D. Roy	... The Development of the Tea Industry in Mauritius	Revue Agricole et Sucrière de l'Ile Maurice, Vol. 48, No. 3, pp. 156-164
K. Lutchmeenaraidoo	... Agricultural Extension : New Concepts and Limitations	Revue Agricole et Sucrière de l'Ile Maurice, Vol. 48 No. 3, pp. 190-194
D. Ardill	... Le Développement de la pêche à Maurice	Revue Agricole et Sucrière de l'Ile Maurice, Vol. 48 No. 3, pp. 210-213
P. Ramdin, A. R. Satar & M. S. Chaudry	Sprinkler Irrigation for Rice Crop—A Possibility	Revue Agricole et Sucrière de l'Ile Maurice, Vol. 48 No. 4, pp. 331-332
M. S. Chaudry, T.M. Narain & A. Joomye	"Package of Practices" for Rice Under Mauritius Conditions	Revue Agricole et Sucrière de l'Ile Maurice, Vol. 48 No. 4, pp. 333-336

F. Animal Health Laboratory**PATHOLOGICAL CONDITIONS DIAGNOSED IN POULTRY SUBMITTED
BY PUBLIC BREEDERS**

		<i>January</i>	<i>February</i>	<i>March</i>	<i>April</i>	<i>May</i>	<i>June</i>	<i>July</i>	<i>August</i>	<i>September</i>	<i>October</i>	<i>November</i>	<i>December</i>	<i>Total</i>
Respiratory Disease ...	...	2	3	1	2	3	4	4	4	4	3	7	2	39
Worms Infestation ...	...	4	—	2	1	—	—	1	1	2	5	6	3	25
Vitamin A deficiency ...	...	1	—	—	—	1	4	1	—	1	2	1	1	12
Vitamin B deficiency ...	...	1	—	—	—	—	1	—	6	—	—	11	—	19
Rickets ...	...	1	1	1	—	—	1	—	1	—	1	1	2	9
Nephritis ...	...	—	—	—	—	—	1	—	—	1	1	—	2	5
Coccidiosis ...	...	3	4	1	1	3	4	13	1	4	5	3	5	47
Aspergillosis ...	...	3	—	—	—	—	—	—	—	1	4	3	—	11
Leucosis ...	...	7	7	2	5	4	—	5	10	3	4	4	6	57
Cannibalism ...	...	—	—	3	—	—	—	—	—	1	—	—	—	4
Chronic Respiratory Disease ...	...	1	—	—	—	—	—	1	—	—	—	4	—	6
Unabsorbed Yolk ...	...	5	1	—	—	—	—	1	—	20	2	1	—	30
Enteritis ...	...	2	—	—	—	—	—	1	—	—	6	—	—	9
Peritonitis ...	...	3	3	2	2	1	1	2	2	3	1	2	1	23
Black Head ...	...	—	—	—	—	—	—	—	—	—	—	1	—	1
Sour crop (Moniliasis) ...	...	—	1	1	—	1	—	—	—	—	1	1	—	5
Newcastle Disease ...	...	4	1	—	—	1	—	3	3	1	3	3	—	19
Coryza ...	...	—	—	—	—	—	—	1	—	3	1	—	1	6
Fowl Pox ...	...	—	—	—	—	—	—	—	—	1	2	—	—	3
Trichomonas ...	...	—	—	—	—	1	—	—	—	—	—	—	—	1
E. coli Septicaemia ...	...	—	6	3	2	—	6	—	—	—	—	—	1	18
Perosis ...	...	—	—	—	—	—	—	2	—	—	—	—	—	2
Miscellaneous ...	...	2	2	1	3	2	2	1	1	3	9	6	4	36
TOTAL ...	...	39	29	17	16	17	24	36	29	48	50	53	28	387

PATHOLOGICAL CONDITIONS DIAGNOSED IN POULTRY SUBMITTED BY
POULTRY BREEDING CENTRE

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Respiratory Disease ...	1	6	3	2	7	23	38	31	2	9	2	6	130
Worms Infestation ...	—	—	—	3	3	1	—	—	—	—	—	—	12
Vitamin A deficiency	—	—	—	1	—	—	—	—	—	—	—	—	1
Vitamin B deficiency	—	—	—	—	9	40	48	30	—	9	4	2	142
Rickets ...	—	—	—	—	—	4	3	1	1	3	—	1	13
Nephritis	—	—	2	—	1	—	2	3	—	1	1	—	10
Coccidiosis	3	—	—	—	4	3	3	1	—	3	15	4	36
Leucosis	1	3	8	5	9	5	11	4	5	6	4	5	66
Cannibalism	—	—	—	1	—	1	3	2	1	1	1	2	12
Chronic Respiratory disease	—	—	1	—	—	—	—	—	—	—	—	—	1
Unabsorbed Yolk	—	—	—	—	37	18	28	8	—	1	—	—	92
Enteritis	—	—	—	—	1	3	9	—	1	3	—	2	19
Peritonitis	—	2	5	6	1	8	5	2	4	—	10	4	47
Sour Crop (Moni- liasis) ...	—	—	—	—	—	—	—	—	—	1	—	—	1
Newcastle Disease	—	1	3	2	1	1	1	—	—	—	—	—	9
E. Coli Septicaemia	—	—	—	1	—	—	—	—	—	1	3	1	6
Perosis	—	—	—	—	—	1	1	—	—	—	—	—	2
Trauma	—	—	—	—	1	—	3	—	—	—	—	—	4
Miscellaneous	—	7	5	5	2	4	6	2	7	3	2	9	52
TOTAL	5	19	27	26	76	112	161	84	23	41	44	37	655

Details of Specimens submitted by Government Centres
other than Poultry Breeding Centre

PALMAR LIVESTOCK BREEDING CENTRE

Specimen	January	February	March	April	May	June	July	August	September	October	November	December	Total
Calf ...	—	—	—	2	1	—	1	—	—	—	1	—	5
Bull ...	—	—	—	—	—	—	—	1	—	—	—	—	1
Cow ...	—	—	—	—	—	—	—	—	1	—	—	1	2
Kid ...	—	1	—	—	—	5	1	2	4	—	3	—	16
Buck ...	—	—	—	—	—	—	—	1	—	1	1	—	3
Doe ...	—	—	—	—	—	1	—	1	—	—	—	—	2
Goat's stool	—	—	—	—	—	—	2	—	—	—	—	—	2
Blood sample	—	—	—	—	2	—	—	—	—	—	—	—	2
Skin scrapings	1	1	—	—	—	—	—	—	—	2	1	—	5
Fowl ...	—	—	—	—	—	—	—	—	1	—	—	—	1
TOTAL	1	2	—	2	3	6	4	5	6	3	6	1	39

CUREPIPE LIVESTOCK BREEDING STATION

Specimen	January	February	March	April	May	June	July	August	September	October	November	December	Total
Milk Sample	...	—	—	8	—	4	—	—	—	—	—	—	12
Calf ...	...	2	—	1	—	1	—	3	4	1	2	—	14
Cow ...	...	—	—	—	—	—	—	—	—	—	1	—	1
Rabbit	...	—	—	—	—	1	—	—	1	—	1	—	3
Pig ...	...	—	1	2	1	3	1	2	1	—	—	—	11
TOTAL	...	2	1	3	9	4	6	5	5	2	2	2	41

ARTIFICIAL INSEMINATION CENTRE DIVISION OF VETERINARY SERVICES, REDUIT

Specimen	January	February	March	April	May	June	July	August	September	October	November	December	Total
Milk Sample	...	—	—	—	1	—	—	—	—	—	—	—	1
Rabbit	...	—	—	3	3	1	1	2	—	—	—	—	10
Goat ...	...	—	—	2	—	—	—	—	—	—	—	—	2
Guinea Pig	...	2	1	1	5	—	—	—	2	9	14	6	40
Duck ...	...	1	—	—	—	—	—	—	—	—	—	—	1
Blood smears	...	—	—	4	—	—	—	—	3	—	—	—	7
Rabbit's stool	...	—	—	—	3	—	—	—	—	—	—	—	3
Goat's stool	...	—	—	—	—	—	—	2	—	—	—	—	2
Dog's stool	...	—	—	—	—	—	—	2	—	—	—	—	2
TOTAL	...	3	1	10	11	2	1	2	6	12	14	6	68

G. Conversion Table

1 Arpent	...	...	1.043 acres
1 Gaulette	...	...	10. 61 feet
1 Metric Ton	...	...	1,000 kilos
1 Long Ton	...	...	1,016 kilos
1 Pound avoirdupois	...	...	454 grms
1 Kilo	...	...	1,000 grms
1 Hundredweight	...	...	50.803 kilos
1 Cord	...	...	92.82 Cubic feet
1 Imperial Gallon	...	...	4.45 litres
1 Rupee	...	...	1/6 sterling

